Repair-Parts

ProMix® 3KS

313883A

ENG

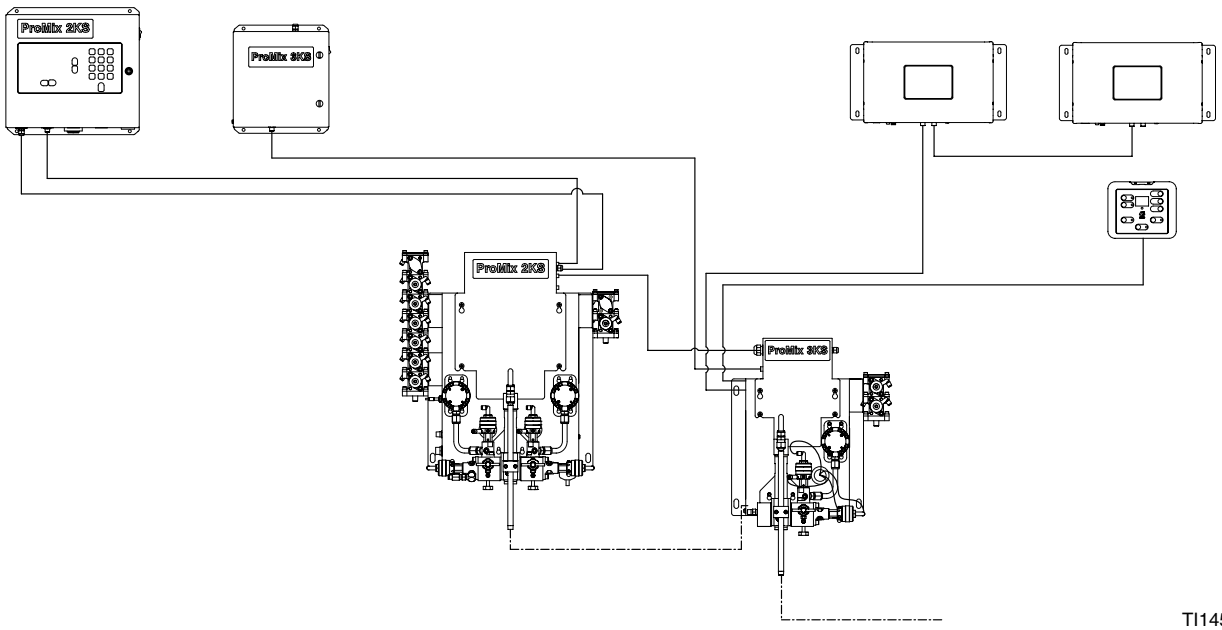
Plural Component Proportioner

Manual and Automatic systems for proportional mixing of plural component coatings. For professional use only.

Approved for use in explosive atmospheres (except the EasyKey and 3KS Power Supply Module).

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

See page 4 for model information, including maximum working pressure. Equipment approval labels are on page 3. Some components shown are not included with all systems.



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PROVEN QUALITY. LEADING TECHNOLOGY.

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Related Manuals

Component Manuals in English

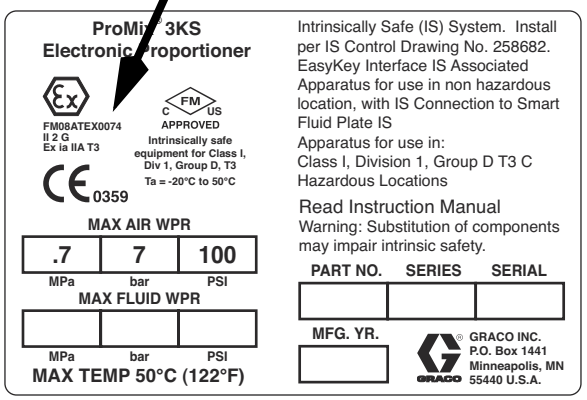
Manual	Description
313881	ProMix 3KS Kit Installation
313882	ProMix 3KS Manual System Operation
313885	ProMix 3KS Automatic System Operation
312775	ProMix 2KS Manual System Installation
312776	ProMix 2KS Manual System Operation
312777	ProMix 2KS Manual System Repair-Parts
312778	ProMix 2KS Automatic System Installation
312779	ProMix 2KS Automatic System Operation
312780	ProMix 2KS Automatic System Repair-Parts
312781	Fluid Mix Manifold
312782	Dispense Valve
312783	Color Change Valve Stacks
312787	Color Change Module Kit
312784	Gun Flush Box Kits
310745	Gun Air Shutoff Kit
312786	Dump Valve and Third Purge Valve Kits
312785	Network Communication Kits
308778	G3000/G3000HR Flow Meter
313599	Coriolis Flow Meter
313290	Floor Stand Kit
313542	Beacon Kit
313386	Basic Web Interface/Advanced Web Interface
406799	15V256 Automatic System Upgrade Kit
406800	15V825 Discrete I/O Board Kit

Equipment Approvals

Equipment approvals appear on the following labels which are attached to the Fluid Station and Power Supply Module. See FIG. 1 on page 4 for label locations.

Power Supply Module and Fluid Station Label

ATEX Certificate is listed here



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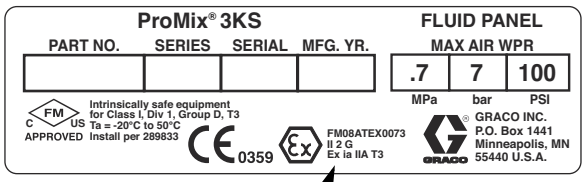
Fluid Station Label



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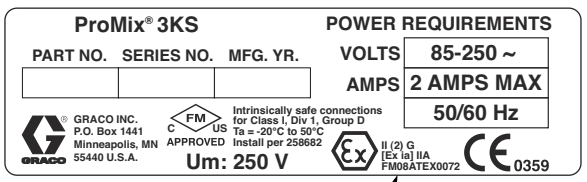
Power Supply Module Label



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System Configuration and Part Numbers

Configurator Key

The configured part number for your equipment is printed on the equipment identification labels. See FIG. 1 for location of the identification labels. The part number includes digits from each of the following categories, depending on the configuration of your system.				
3K System	**Component C Fluid Meter**	**Component C Change**	**Not Designated**	**Not Designated**
TK	0 = No Meter 1 = G3000 2 = G3000HR 3 = 1/8 in. Coriolis 4 = Solvent Meter	0 = No Valves (single component C) 1 = Two Valves (low pressure) 2 = Four Valves (low pressure) 3= Two Valves (high pressure) 4= Four Valves (high pressure)	0	0

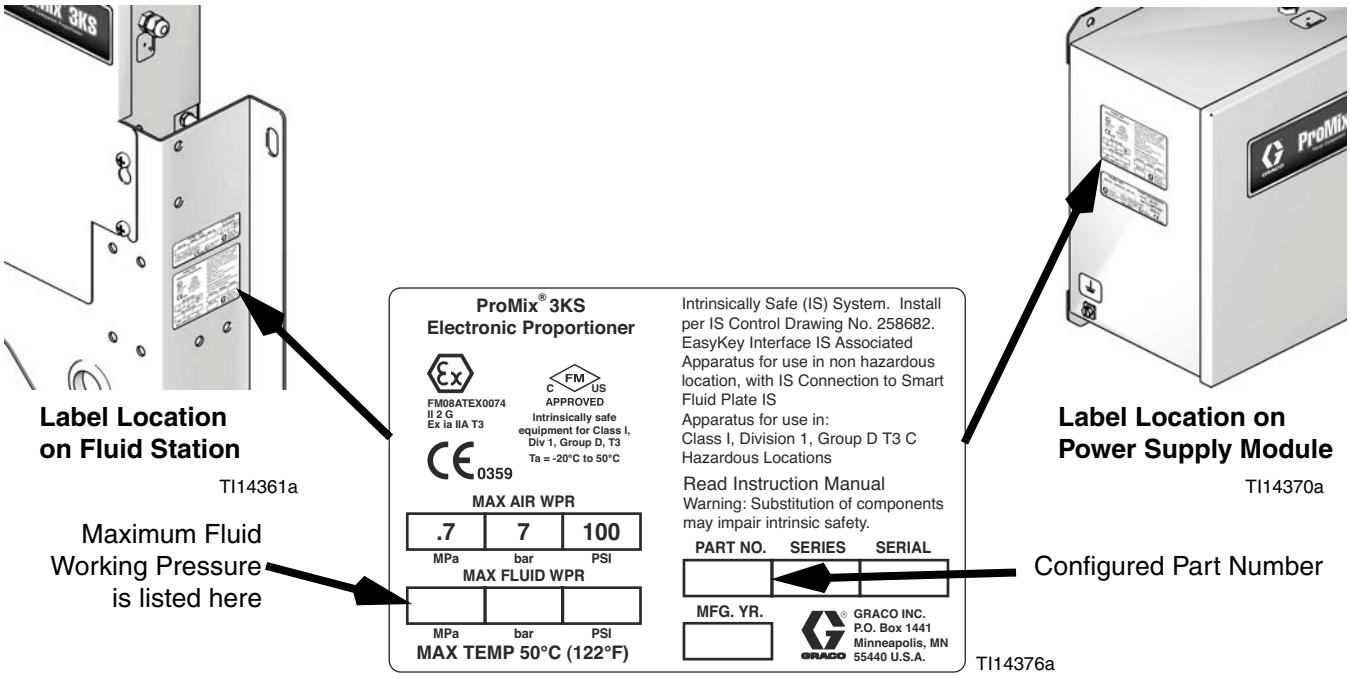


FIG. 1: Identification Label

Hazardous Location Approval

Models using a G3000, G3000HR, or intrinsically safe Coriolis meter for A, B, and C meters are approved for installation in a Hazardous Location - Class I, Div I, Group D, T3 or Zone I Group IIA T3.

Maximum Working Pressure

Maximum working pressure rating is dependent on the fluid component options selected. ***The pressure rating is based on the rating of the lowest rated fluid component.*** Refer to the component pressure ratings below. *Example:* A Model with Flow Control has a maximum working pressure of 190 psi (1.31 MPa, 13.1 bar).

Check the identification label on the EasyKey, power supply module, or fluid station for the system maximum working pressure. See FIG. 1.

ProMix Fluid Manifold Components Maximum Working Pressure

Base System (no meters [option 0], no color/component C change [option 0], and no flow control [Optional with ProMix 2KS Base Unit]) . . . . . .3000 psi (21.0 MPa, 210 bar)
Meter Option 1, 2, and 4 (G3000, G3000HR, or Solvent Meter) . . . . . .3000 psi (21.0 MPa, 210 bar)
Meter Option 3 (Coriolis Meter) . . . . . 2300 psi (15.86 MPa, 158.6 bar)
Color Change Option 1 and 2 (low pressure valves) . . . . . 300 psi (2.07 MPa, 20.6 bar)
Color Change Option 3 and 4 (high pressure valves). . . . . 3000 psi (21 MPa, 210 bar)
Flow Control (Optional with ProMix 2KS Automatic System Base Unit). . . . . 190 psi (1.31 MPa, 13.1 bar)

Flow Meter Fluid Flow Rate Range

G3000. . . . . 75-3800 cc/min. (0.02-1.0 gal./min.)
G3000HR . . . . . 38-1900 cc/min. (0.01-0.50 gal./min.)
Coriolis Meter . . . . . 20-3800 cc/min. (0.005-1.00 gal./min.)
S3000 Solvent Meter (accessory) . . . . . 38-1900 cc/min. (0.01-0.50 gal./min.)

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

INTRINSIC SAFETY

Only models with a G3000, G250, G3000HR, G250HR, or intrinsically safe Coriolis meter for A, B, and C meters are approved for installation in a Hazardous Location - Class I, Div I, Group D, T2 C. To help prevent fire and explosion:

- Do not install equipment approved only for a non-hazardous location in a hazardous area. See the ID label for the intrinsic safety rating of your model.
- Do not substitute system components as this may impair intrinsic safety.

SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Tighten all fluid connections before operating the equipment.
- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power or air supply.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

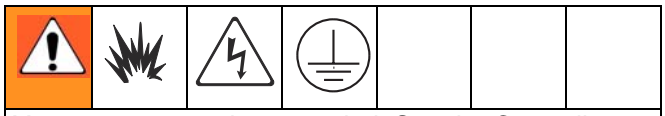
- Read MSDS's to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Always wear impervious gloves when spraying or cleaning equipment.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

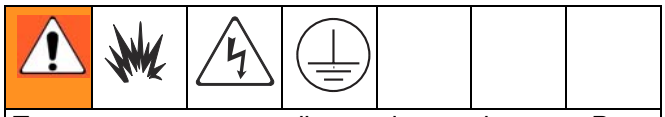
- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

Grounding



Your system must be grounded. See the Grounding instructions in your ProMix 3KS Installation manual.

Check Resistance



To ensure proper grounding, resistance between ProMix components and true earth ground **must** be less than 1 ohm. Read **Warnings**, page 6.

Have a qualified electrician check resistance between each ProMix component and true earth ground. If resistance is greater than 1 ohm, a different ground site may be required. Do not operate the system until the problem is corrected.

Pressure Relief Procedure

NOTE: The following procedures relieve all fluid and air pressure in the ProMix 3KS system. Use the procedure appropriate for your system configuration.

Relieve pressure when you stop spraying, before changing spray tips, and before cleaning, checking, or servicing equipment.

Single Color Systems

1. While in Mix mode (gun triggered), shut off the A, B, and C fluid supply pumps/pressure pots. Close all fluid shutoff valves at the pump outlets.

2. With the gun triggered, push the manual override on the A, B, and C dose valve solenoids to relieve pressure. See FIG. 4.

   NOTE: If a Dose Time alarm (E-7, E-8) occurs, clear the alarm.

3. Do a complete system purge, following the instructions under **Purging Using Recipe 0** in your system Operation manual.

4. Shut off the fluid supply to the solvent purge valve (SPV) and the air supply to the air purge valve (APV), FIG. 3.

5. With the gun triggered, push the manual override on the A, B, and C purge valve solenoids to relieve air and solvent pressure. See FIG. 4. Verify that solvent pressure is reduced to 0.

   NOTE: If a Purge Volume alarm (E-11) occurs, clear the alarm.

Systems with Color Change and without Dump Valves

NOTE: This procedure relieves pressure through the sampling valve.

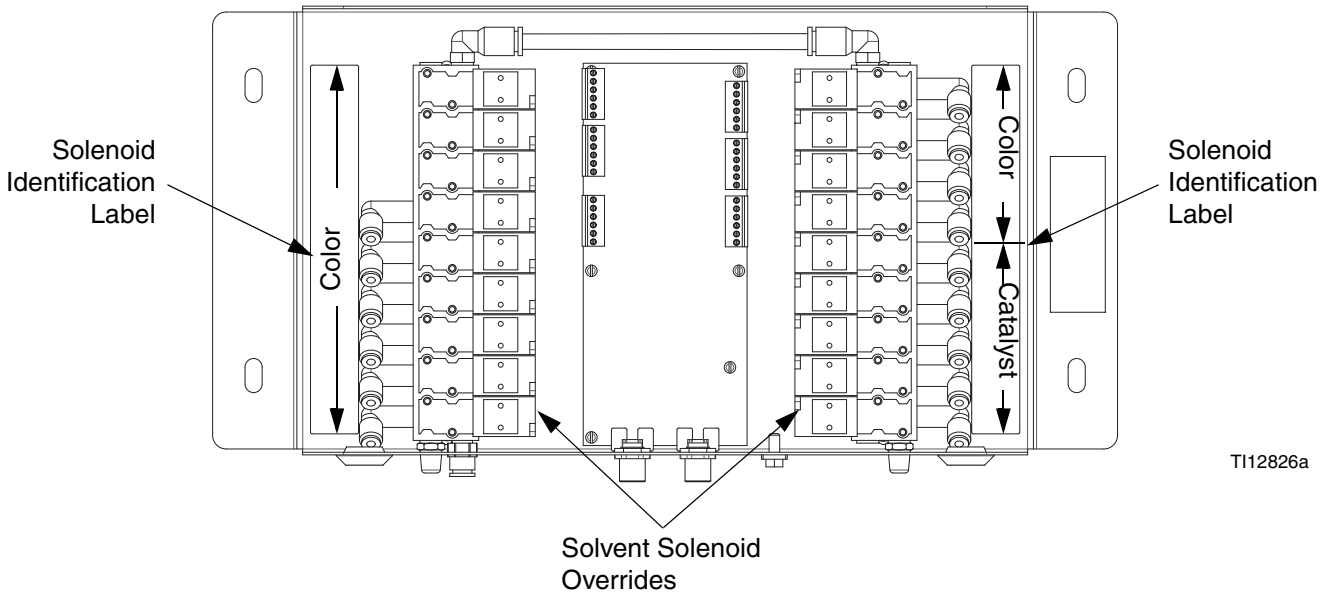
1. Complete all steps under **Single Color Systems**, page 8.
2. Close the A side shutoff valve (SVA), FIG. 3. Open the A side sampling valve (RVA).
3. Direct the A side sampling tube into a waste container.
4. See FIG. 2. Open the color change module. Using the solenoid identification labels as a guide, press and hold the override button on each color solenoid until flow from the sampling valve stops.
5. Press and hold the solvent solenoid override until clean solvent comes from the sampling valve, then release.
6. Shutoff the solvent supply to the color change stack solvent valve.
7. Press and hold the solvent solenoid override until solvent flow from the sampling valve stops.
8. Open the A side shutoff valve (SVA), FIG. 3. Close the A side sampling valve (RVA).

Systems with Color/Catalyst/Component C Change and Dump Valves

NOTE: This procedure relieves pressure through the dump valves.

1. Complete all steps under **Single Color Systems**, page 8.
2. Shut off all color/catalyst/component C supplies to the valve stacks.
3. Press and hold the dump valve A solenoid override, FIG. 4.
4. See FIG. 2. Open the color change module. Using the solenoid identification labels as a guide, press and hold the override button on each color solenoid until flow from dump valve A stops.
5. Press and hold the dump valve B solenoid override, FIG. 4.
6. See FIG. 2. Using the solenoid identification labels as a guide, press and hold the override button on each catalyst solenoid until flow from dump valve B stops.
7. Press and hold the dump valve C solenoid override, FIG. 5.
8. See FIG. 2. Open the color change module. Using the solenoid identification labels as a guide, press and hold the override button on each color solenoid until flow from dump valve C stops.
9. Press and hold the dump valve A solenoid override, FIG. 4.
10. Press and hold the A side (color) solvent solenoid override until clean solvent comes from the dump valve, then release.
11. Press and hold the dump valve B solenoid override, FIG. 4.
12. Press and hold the B side (catalyst) solvent solenoid override until clean solvent comes from the dump valve, then release.
13. Press and hold the dump valve C solenoid override, FIG. 5.
14. Press and hold the C side solvent solenoid override until clean solvent comes from the dump valve, then release.
15. Shutoff the solvent supply to the color/catalyst/component C change stack solvent valves.
16. Press and hold the A, B, and C solvent solenoid overrides and dump valve overrides until solvent flow from the dump valves stops.

Module #1



Module #2

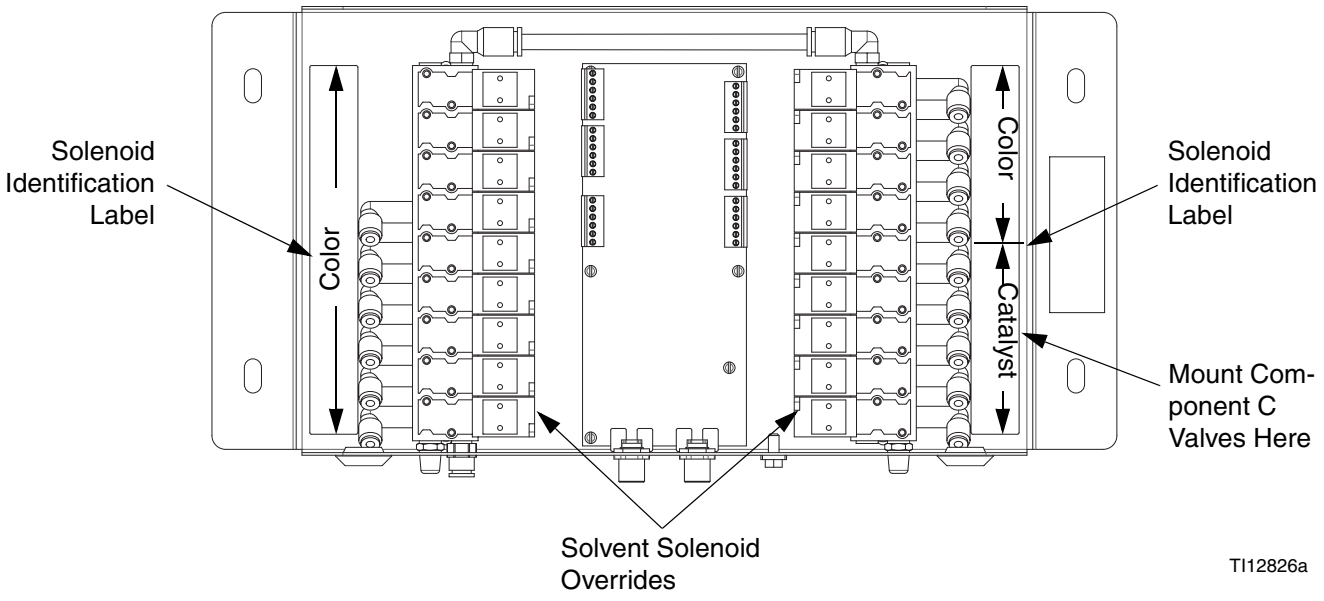
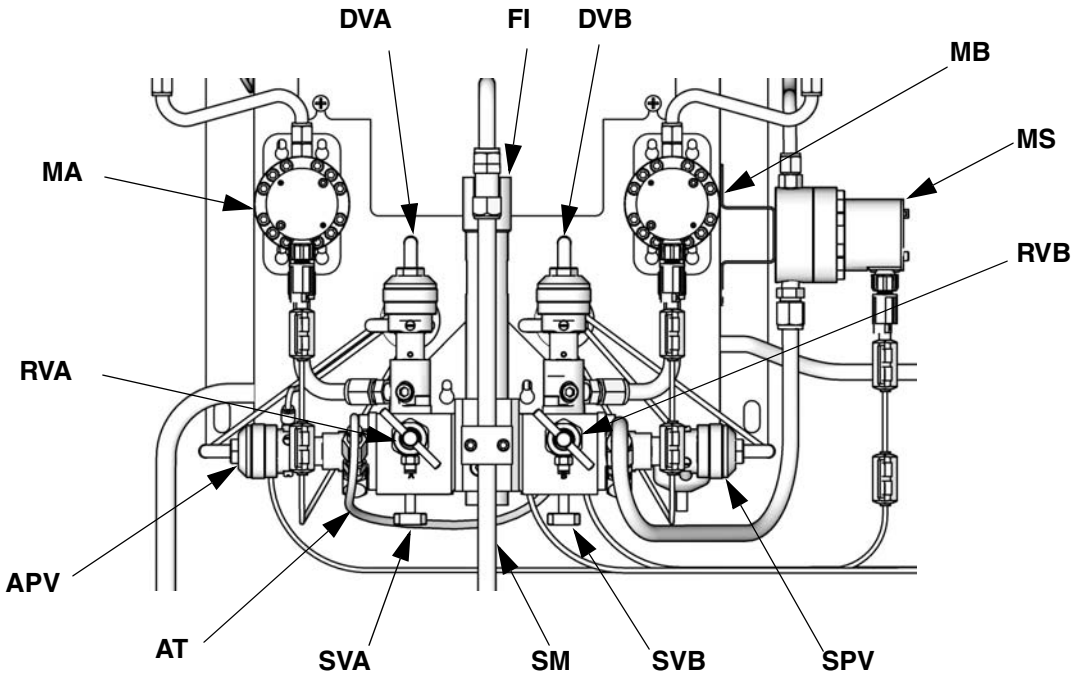
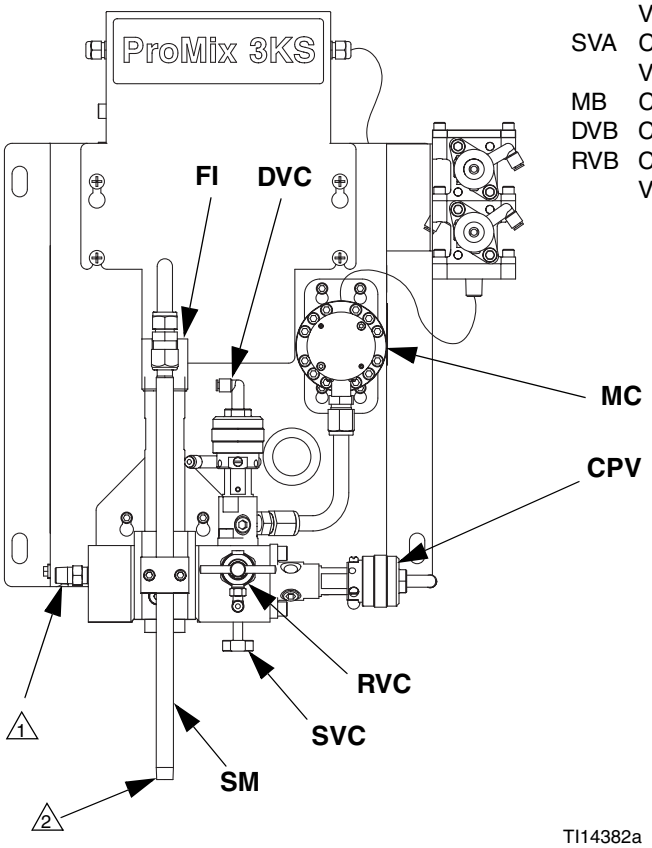


FIG. 2: Color Change Solenoids



Key: ProMix 2KS Fluid Station

MA	Component A Meter	SVB	Component B Shutoff Valve
DVA	Component A Dose Valve	MS	Solvent Meter
RVA	Component A Sampling Valve	SPV	Solvent Purge Valve
SVA	Component A Shutoff Valve	APV	Air Purge Valve
MB	Component B Meter	SM	Static Mixer
DVB	Component B Dose Valve	FI	Fluid Integrator
RVB	Component B Sampling Valve	AT	Air Purge Valve Air Supply Tube



Key: ProMix 3KS Fluid Station

MC	Component C Meter
DVC	Component C Dose Valve
RVC	Component C Sampling Valve
SVC	Component C Shutoff Valve
CPV	Component C Purge Valve
SM	Static Mixer
FI	Fluid Integrator

1 3KS fluid inlet. Connect fluid supply line from 2KS fluid manifold outlet here.

2 Connect fluid supply line to gun.

FIG. 3. ProMix 2KS and ProMix 3KS Wall Mount Fluid Stations

Troubleshooting

Follow **Pressure Relief Procedure**, page 8, before cleaning, checking, or servicing equipment.

NOTICE

Do not use the fluid in the line that was dispensed off ratio as it may not cure properly.

NOTE: For complete system troubleshooting, including the EasyKey, A/B Fluid Station, Booth Control, and Optional Flow Control, see your ProMix 2KS Repair-Parts Manual.

Alarm Codes

Table 1 lists the system alarm codes. See the system operation manual for complete information on alarm troubleshooting.

Table 1: System Alarm Codes

Code	Description
E-1	Communication Error Alarm
E-2	Potlife Alarm
E-3	Ratio High Alarm
E-4	Ratio Low Alarm
E-5	Overdose A/B Dose Too Short Alarm
E-6	Overdose B/A Dose Too Short Alarm
E-7	Dose Time A Alarm
E-8	Dose Time B Alarm
E-9	Mix in Setup Alarm
E-10	Remote Stop Alarm
E-11	Purge Volume Alarm
E-12	CAN Network Communication Error Alarm
E-13	High Flow Alarm
E-14	Low Flow Alarm
E-15	System Idle Warning
E-16	Setup Change Warning
E-17	Power On Warning
E-18	Defaults Loaded Warning
E-20	Purge Initiate Alarm
E-21	Material Fill Alarm
E-22	Tank A Low Alarm
E-23	Tank B Low Alarm
E-24	Tank S Low Alarm
E-25	Auto Dump Complete Alarm
E-26	Color/Catalyst Purge Alarm
E-27	Color/Catalyst Fill Alarm
E-29	Tank C Low Alarm
E-30	Overdose C Alarm
E-31	Dose Time C Alarm

Solenoid Troubleshooting

NOTE: Refer to the **Schematic Diagrams**, page 22.

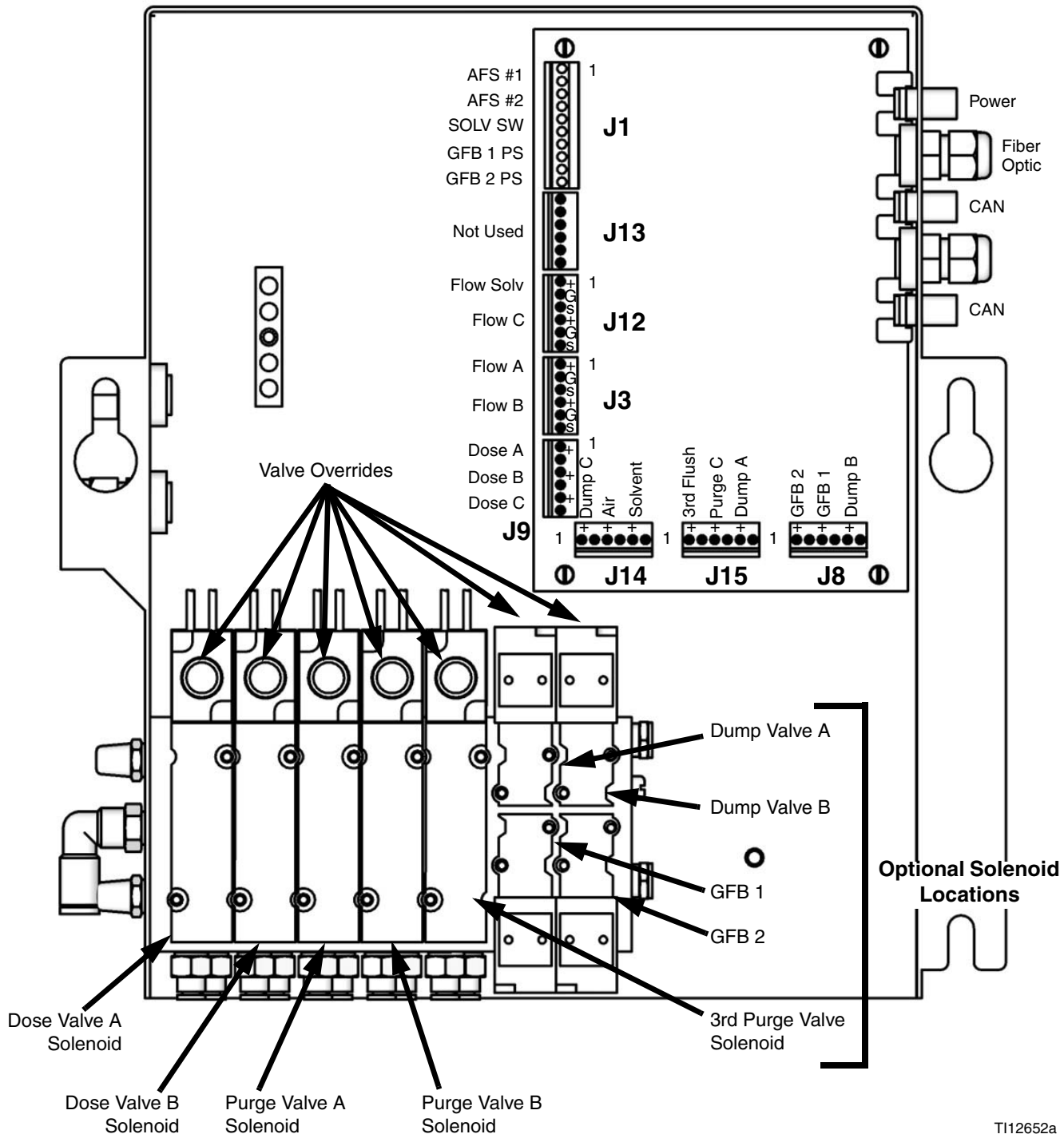


FIG. 4: ProMix 2KS Fluid Station Board and Component A and B Solenoids

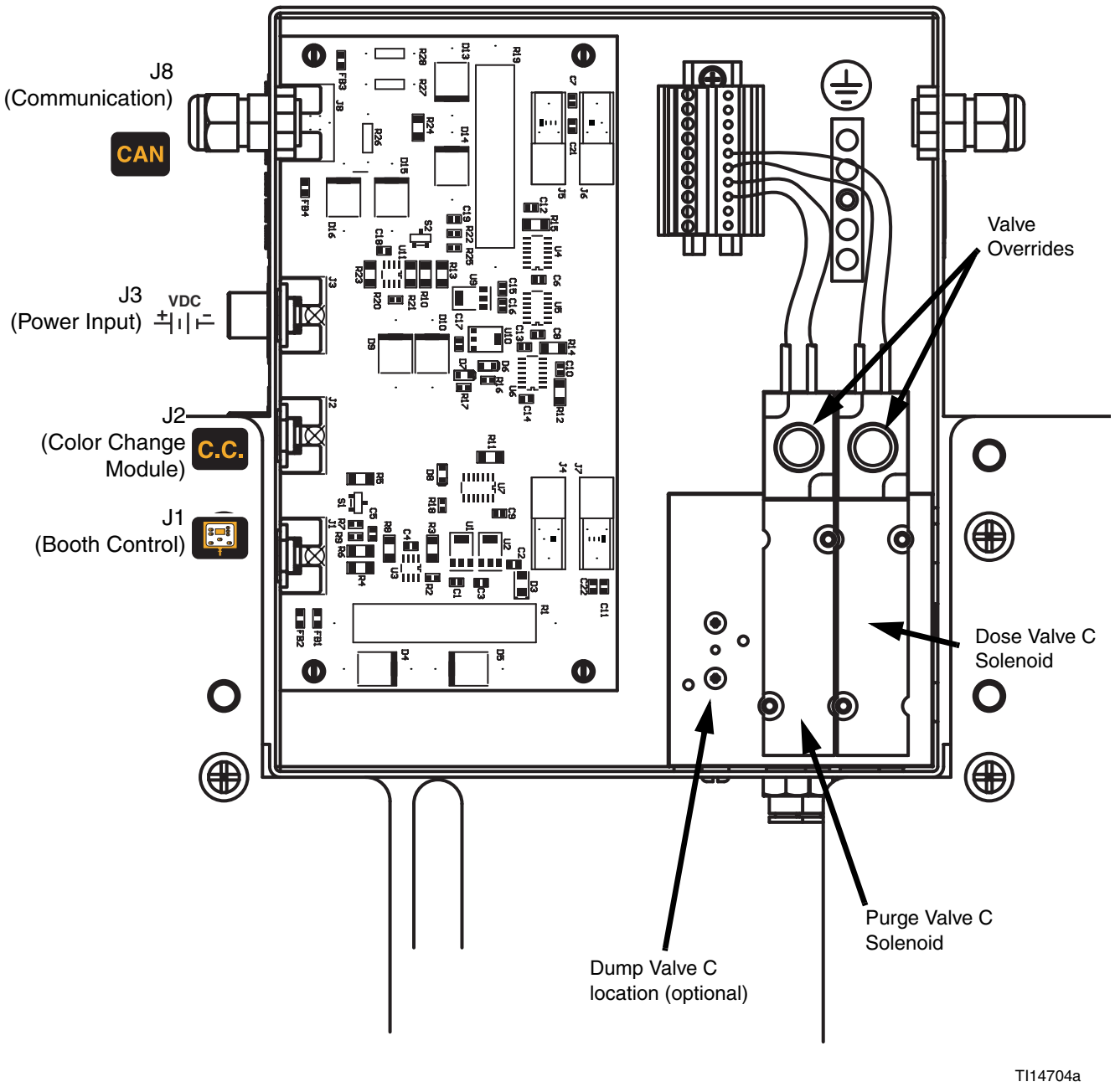


FIG. 5. ProMix 3KS Fluid Station CAN Isolation Board and Component C Solenoids

See FIG. 4 and FIG. 5 to troubleshoot the 2KS and 3KS solenoids. Also see the **System Electrical Schematic** on pages 24 and 26.

If the dispense or purge valves are not turning on or off correctly, it could be caused by one of the following.

Table 2: Solenoid Troubleshooting

Cause	Solution
1. Air regulator pressure set too high or too low.	Check air pressure. 80-90 psi (550-630 kPa, 5.5-6.3 bar) is commonly used. Do not go below 75 psi (0.5 MPa, 5.2 bar) or above 120 psi (0.8 MPa, 8 bar),
2. Air or electrical lines damaged or connections loose.	Visually inspect air and electrical lines for kinks, damage, or loose connections. Service as needed.
3. Solenoid failure.	Check the applicable solenoid's LED (see FIG. 7 and Table 4). If lit, proceed with the following checks. If not lit, go to Cause 4. Remove the connector for the applicable solenoid and measure voltage across the pins on the board. If voltage is between 9-15 Vdc, replace the solenoid. Manually operate the valves by removing the color change module cover and pressing and releasing solenoid valve override buttons. FIG. 2. Valves should snap open and shut quickly. If the valves actuate slowly, it could be caused by: • Air pressure to the valve actuators is too low. See Cause 1. • Solenoid is clogged. Make sure air supply has 10 micron filter installed. • Something is restricting the solenoid or tubing. Check for air output from air line for corresponding solenoid when valve is actuated. Clear restriction. • A dose valve is turned in too far. See ProMix 3KS Operation manual for settings, • Fluid pressure is high and air pressure is low.
4. Fluid station control board or cable failure.	If there is no voltage across the pins on the board or it is less than 9 Vdc, check LEDs D9 and D10 (see FIG. 7 and Table 4). If both are lit and functioning properly, or other solenoids in the module are working properly, replace the color change board. If D9 and D10 are not lit: • Check if the cable is disconnected or damaged. • Check the fluid station control board (see the ProMix 2KS Repair-Parts Manual).

3KS Fluid Station CAN Isolation Board Diagnostics

See FIG. 6 and Table 3 to troubleshoot the 3KS fluid station CAN isolation board. Also see the **System Electrical Schematic** on pages 24 and 26.

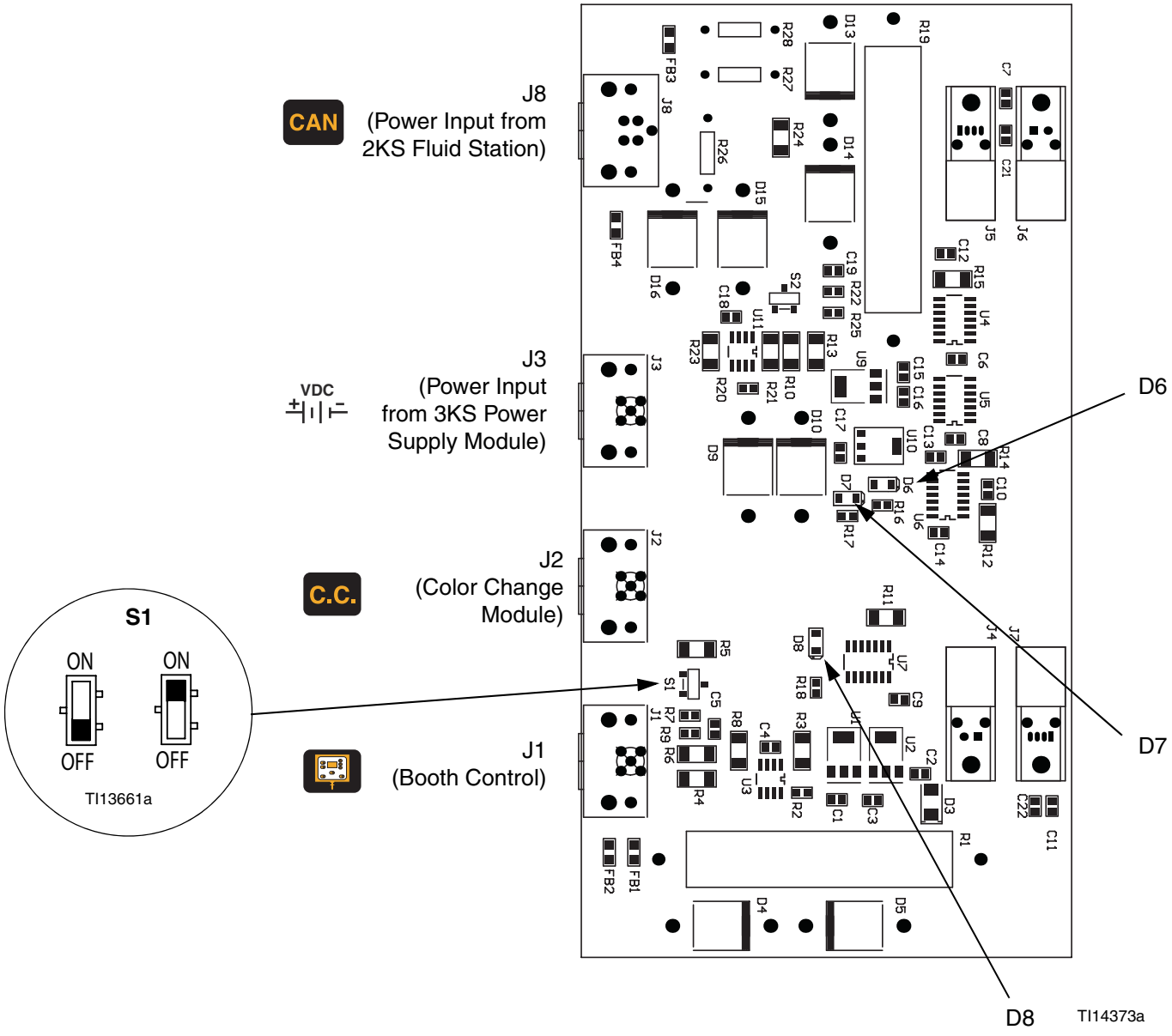


FIG. 6: 258673 3KS Fluid Station CAN Isolation Board

Table 3: 3KS Fluid Station CAN Isolation Board Diagnostics

Component	Connector	Signal Description	Diagnosis
D7 (green LED)	J8	Input Power from 2KS Fluid Station	On (steady green) when power is supplied to CAN isolation board.
D8 (green LED)	J3	Input Power from 3KS Power Supply Module	On (steady green) when power is supplied to CAN isolation board.
D6 (green LED)	n/a	Communication (green)	Blinks rapidly during normal operation. On (steady green) or not lit, there is a communication fault.
S1	J1, J2	n/a	If booth control is connected to J1 **and** color change module is connected to J2, set switch S1 to OFF. If booth control is connected to J1 **or** color change module is connected to J2, set switch S1 to ON. If booth control is not connected to J1 **and** color change module is not connected to J2, set switch S1 to ON.

Color Change Board Diagnostics

See FIG. 7 and Table 4 to troubleshoot the color change board. Also see the **System Electrical Schematic** on pages 24 and 26.

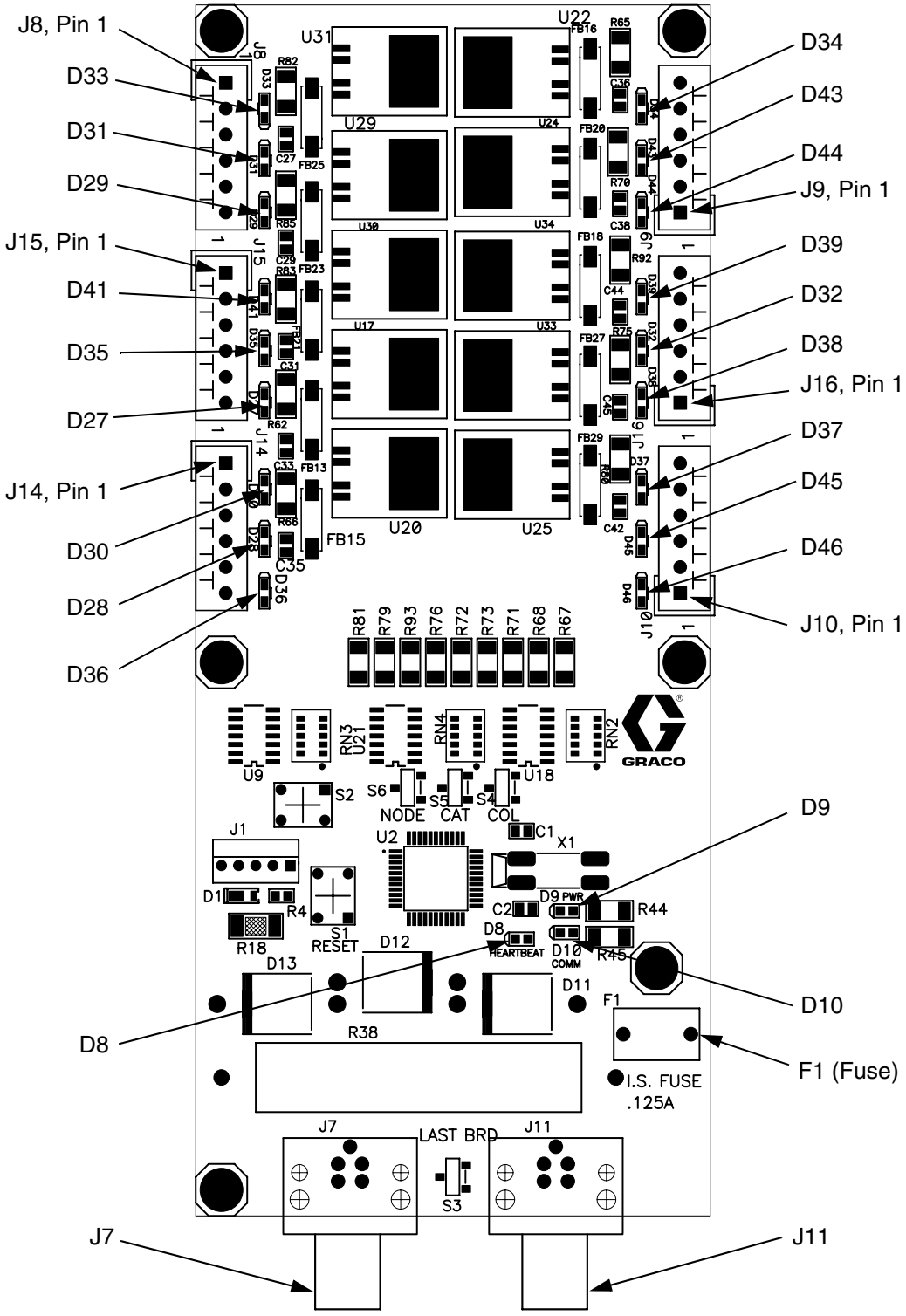


FIG. 7: 256172 Color Change Board

Table 4: Color Change Board Diagnostics

LED	Connector and Pin Nos.	Board 1 Signal Description	Board 2 Signal Description	Diagnosis
D8	n/a	Board OK	Board OK	Blinks (heartbeat) during normal operation.
D9	n/a	Communication (yellow)	Communication (yellow)	Turns on when board is communicating with ProMix 3KS.
D10	J7	Power	Power	Turns on when power is supplied to the board.
D27	J15, 5 & 6	Color 3	Color 16	D27 through D46 turn on when ProMix 3KS sends a signal to actuate the related solenoid valve.
D28	J14, 3 & 4	Color 1	Color 14	
D29	J8, 5 & 6	Color 6	Color 19	
D30	J14, 1 & 2	Color 2	Color 15	
D31	J8, 3 & 4	Color 7	Color 20	
D32	J16, 3 & 4	Catalyst 4	Component C 4	
D33	J8, 1 & 2	Color 8	Color 21	
D34	J9, 5 & 6	Color 9	Color 22	
D35	J15, 3 & 4	Color 4	Color 17	
D36	J14, 5 & 6	Solvent (Color)	Color 13	
D37	J10, 5 & 6	Catalyst 2	Component C 2	
D38	J16, 1 & 2	Catalyst 3	Component C 3	
D39	J16, 5 & 6	Color 12	Color 25	
D41	J15, 1 & 2	Color 5	Color 18	
D43	J9, 3 & 4	Color 10	Color 23	
D44	J9, 1 & 2	Color 11	Color 24	
D45	J10, 3 & 4	Catalyst 1	Component C 1	
D46	J10, 1 & 2	Solvent (Catalyst)	Solvent (Component C)	
F1	Replaceable Fuse	n/a	n/a	Check fuse condition if there is no power to the board or if communication is interrupted between the fluid station and the color change module.

Power Supply Module Barrier Board Diagnostics

See FIG. 8 and Table 5 to troubleshoot the Power Supply Module barrier board. Also see the **Power Supply Module Electrical Schematic** on page 28 and the **System Electrical Schematic** on pages 24 and 26.

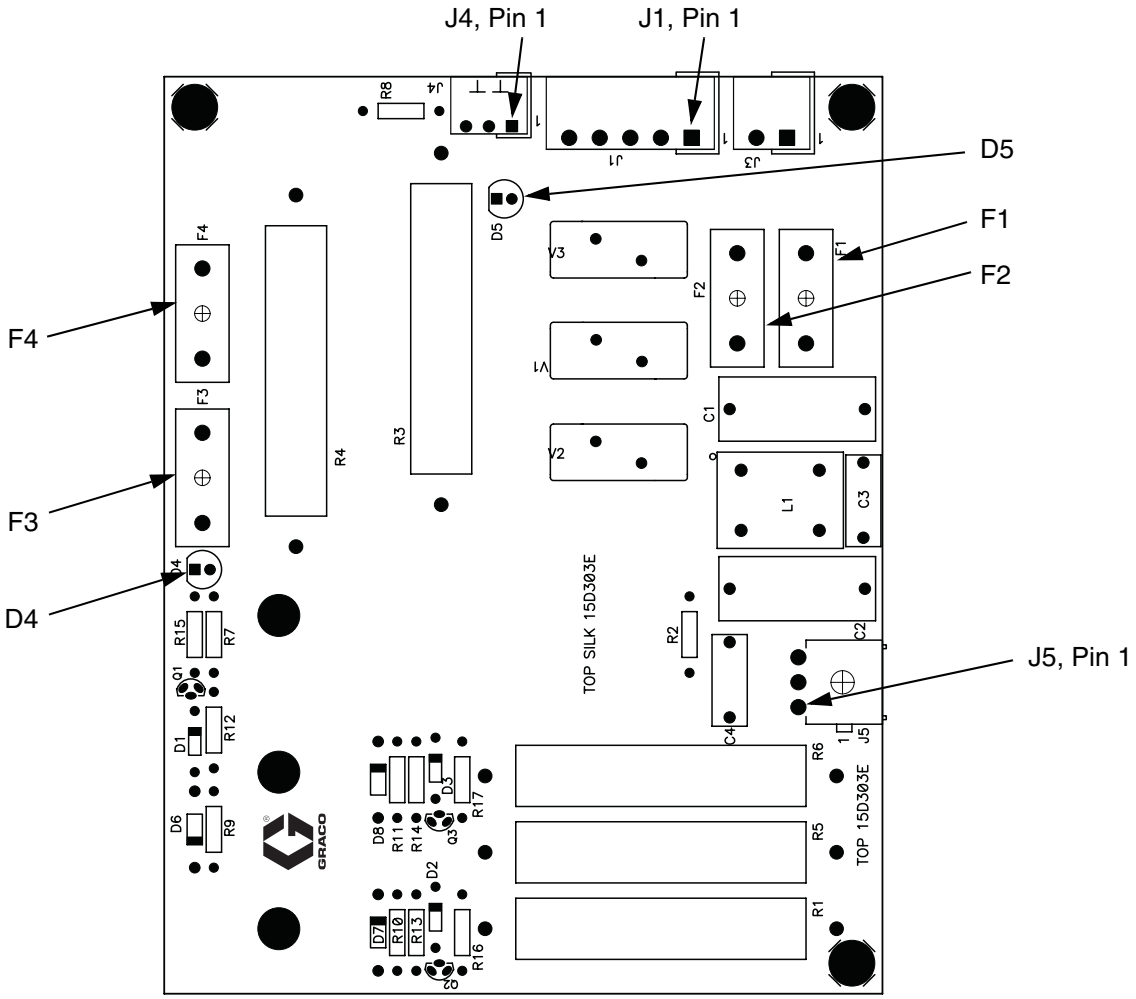


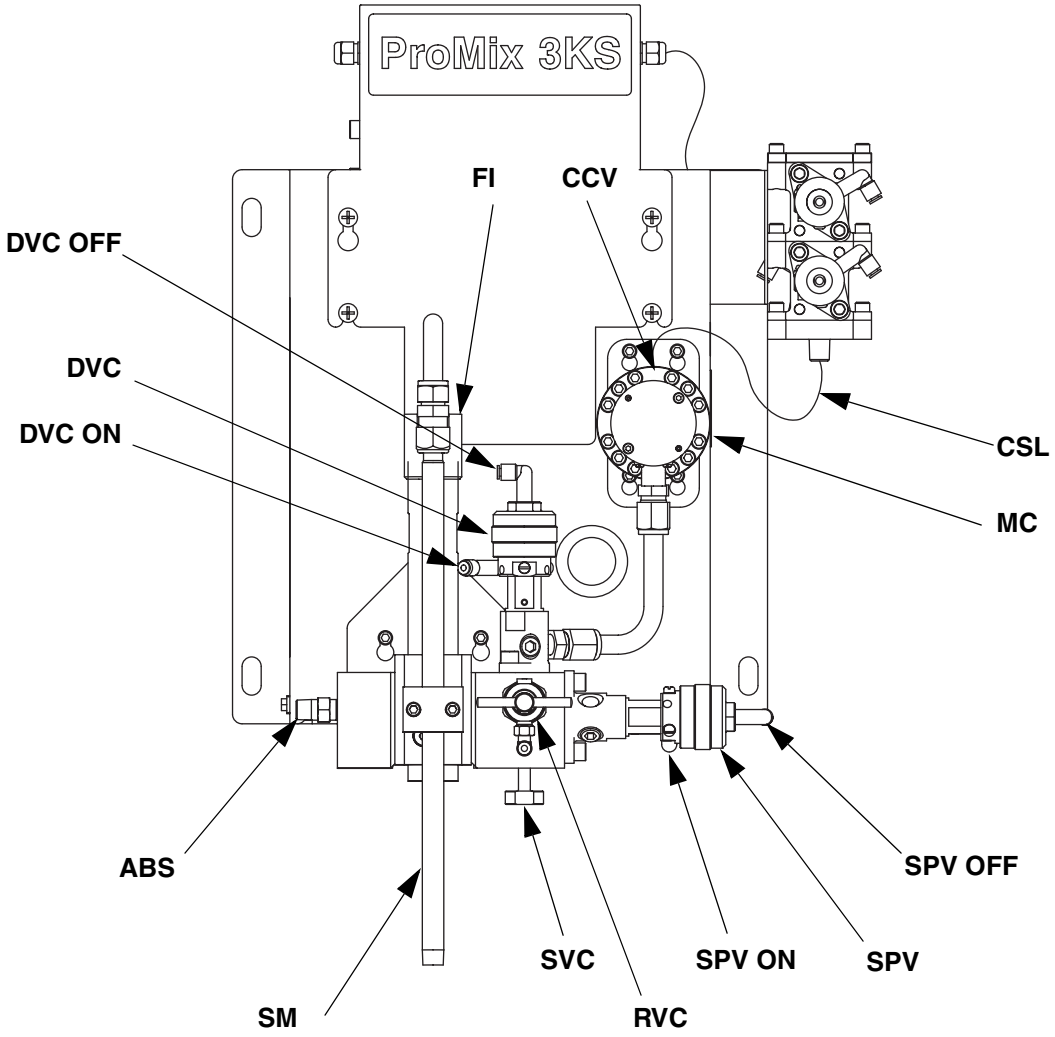
FIG. 8: 255786 Power Supply Module Barrier Board

Table 5: Power Supply Module Barrier Board Diagnostics

Connector	Description	Diagnosis
J1	AC Power Input	n/a
J4	24 Vdc Power Input to EasyKey Display Board	D5 turns on.
J5	12 Vdc Power Output to Fluid Station Board	D4 turns on if barrier board is functioning. If D4 does not turn on, fuses F3 or F4 (Graco Part No. 15D979) are blown or there is no input power at J4. If there is no input power (D5 does not light), fuses F1 and F2 (Graco Part No. 114788) may be blown.

Fluid Manifold Troubleshooting

See FIG. 9. To remove the fluid manifold, see page 40. See manual 312581 for complete information on the fluid manifold.



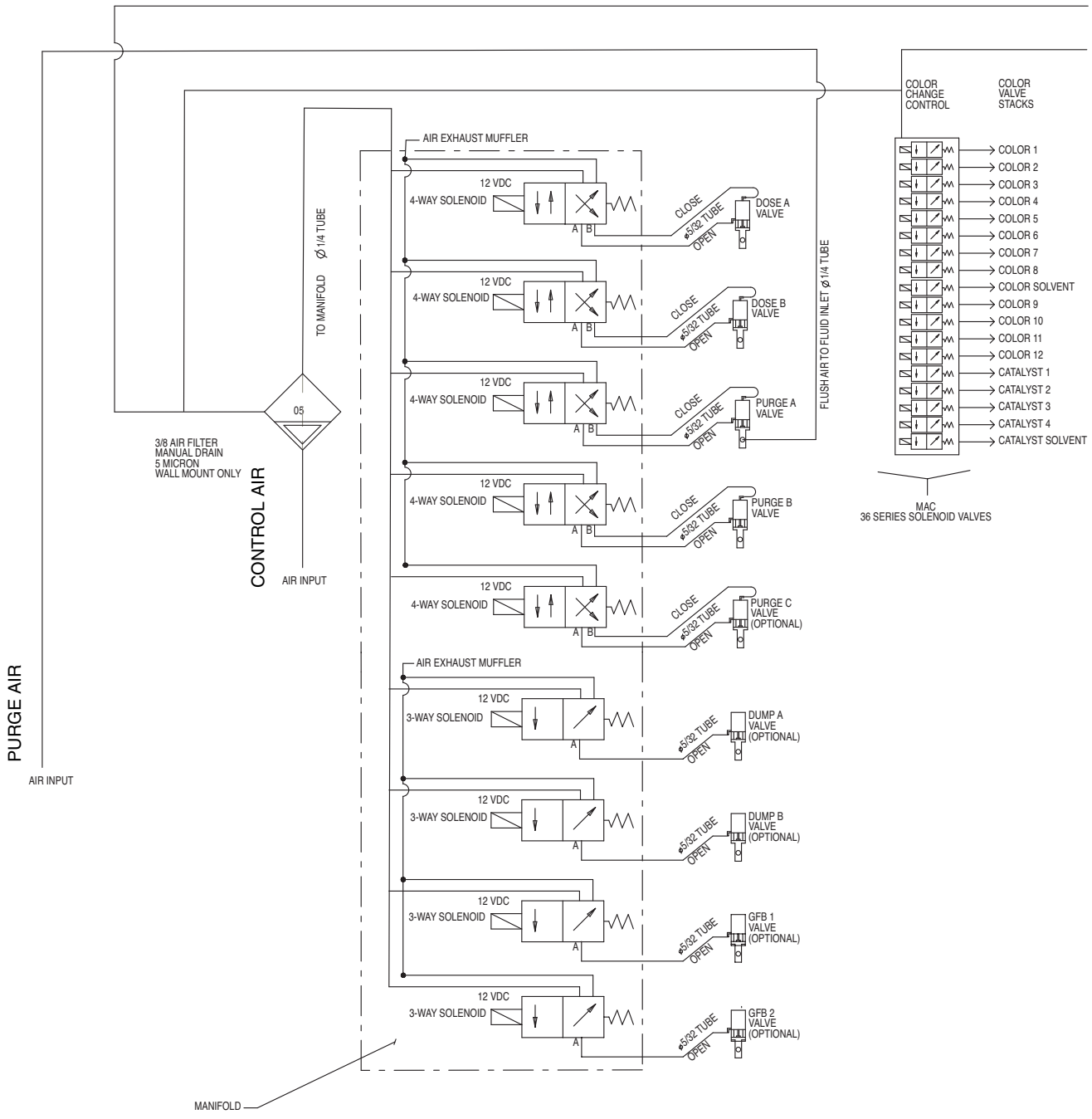
Key:

ABS	A + B Fluid Inlet (from 2KS Panel)	CSL	Component C Supply Line
MC	Component C Meter	CCV	Meter C Check Valve
DVC	Component C Dose Valve	SPV	Solvent Purge Valve
RVC	Component C Sampling Valve	SM	3KS Static Mixer
SVC	Component C Shutoff Valve	FI	3KS Fluid Integrator

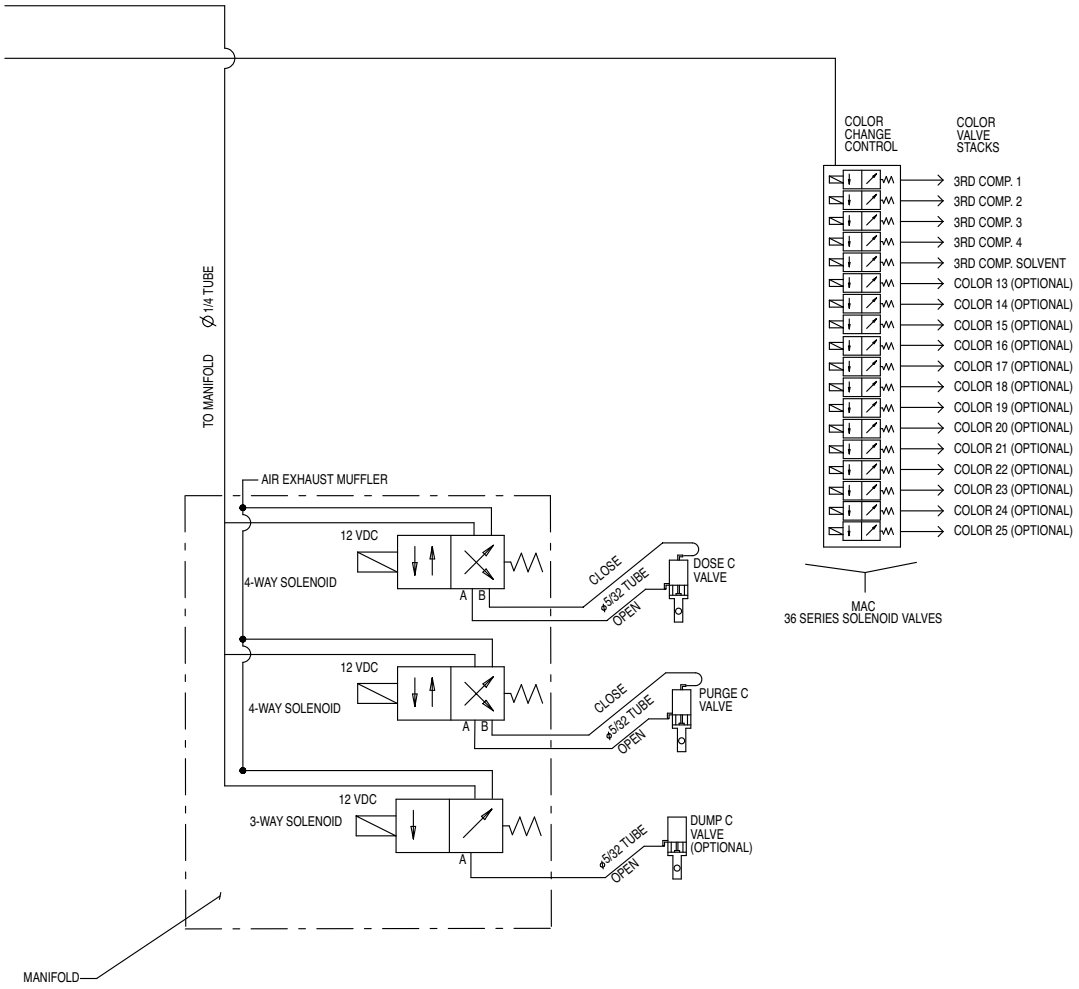
FIG. 9. Fluid Manifold

Schematic Diagrams

System Pneumatic Schematic (2KS Fluid Panel)



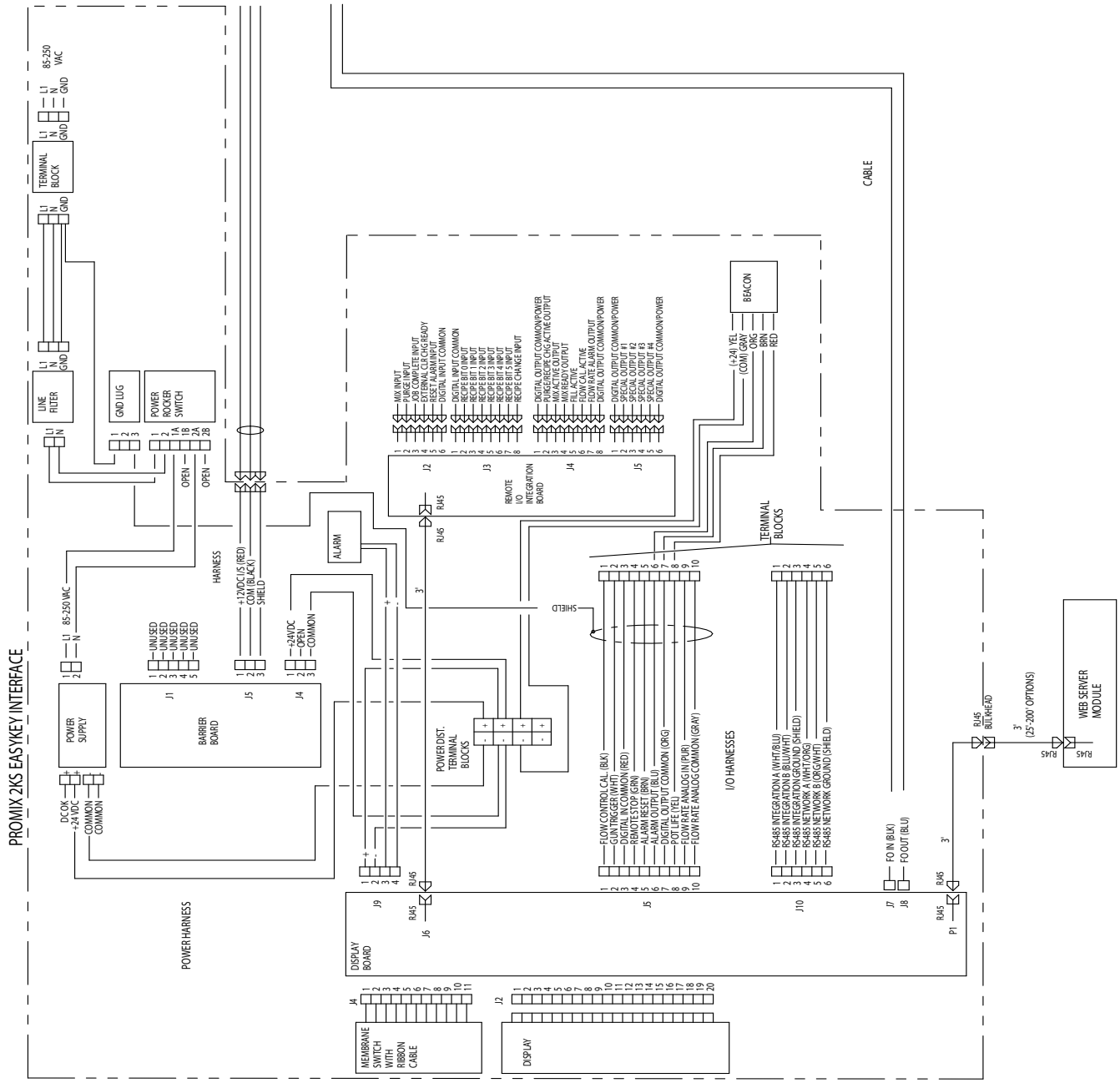
System Pneumatic Schematic (3KS Fluid Panel)



System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 3KS system. Some components shown are not included with all systems.

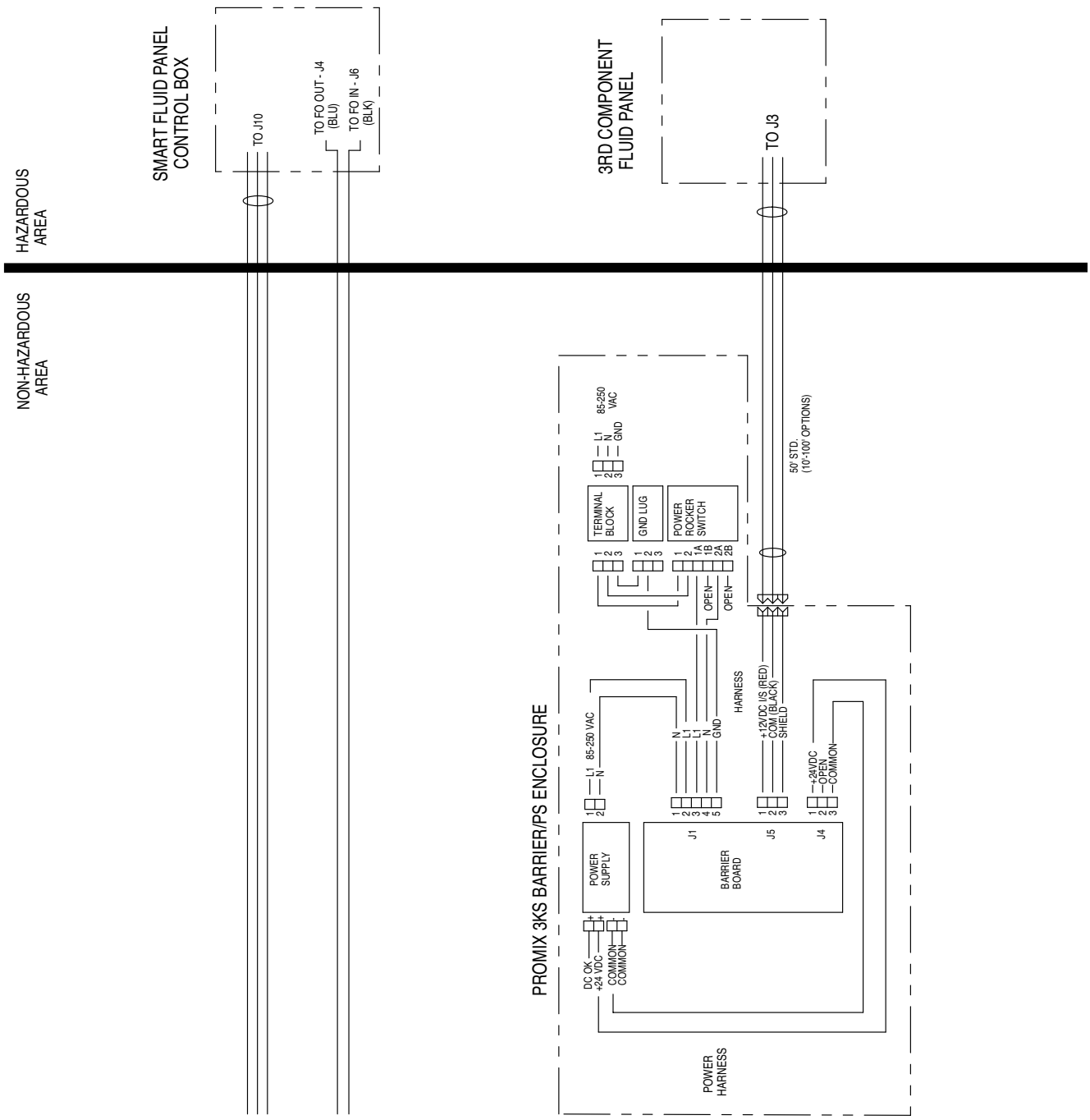
Non-Hazardous Area



System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 3KS system. Some components shown are not included with all systems.

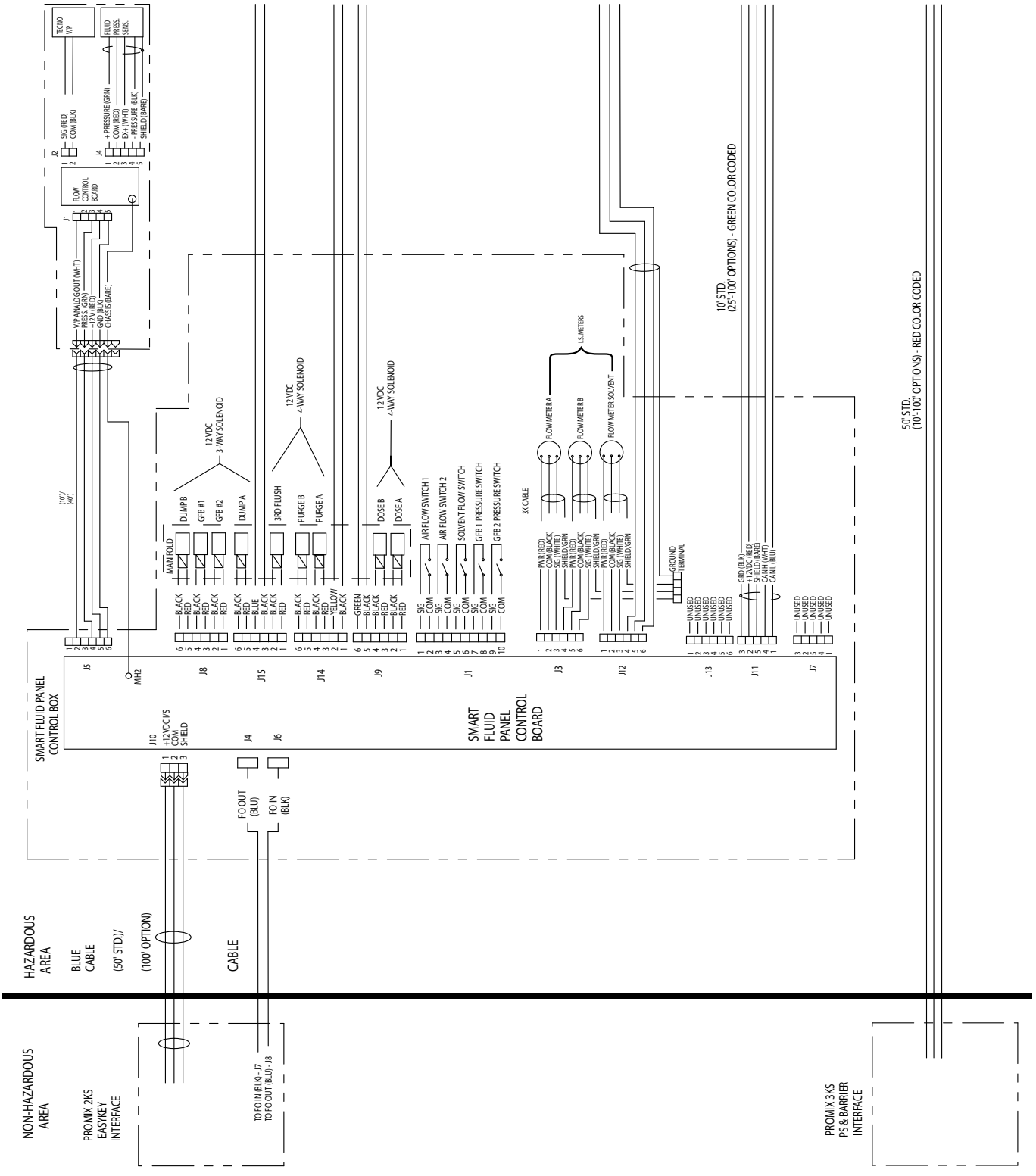
Non-Hazardous Area



System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 3KS system. Some components shown are not included with all systems.

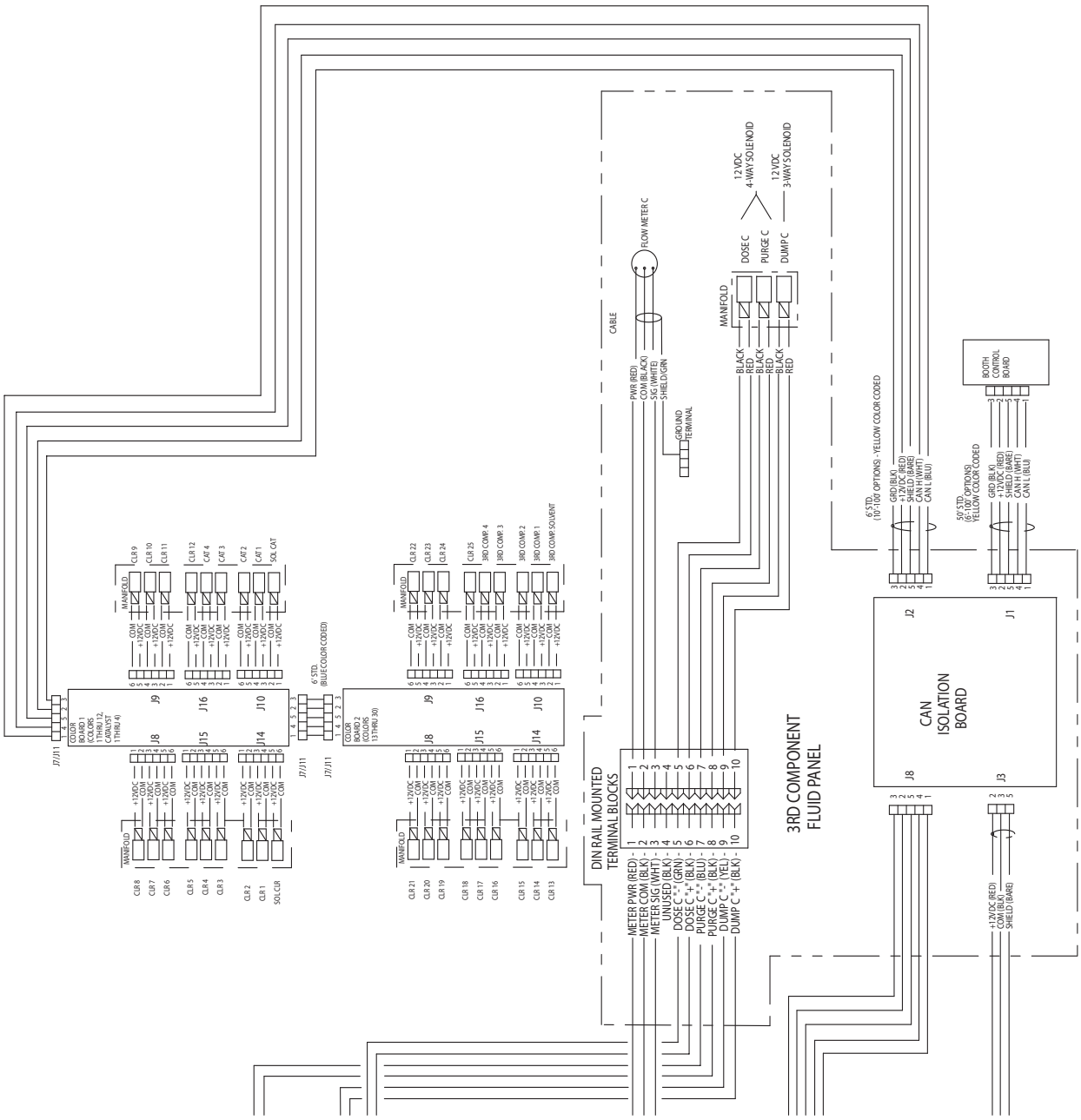
Hazardous Area



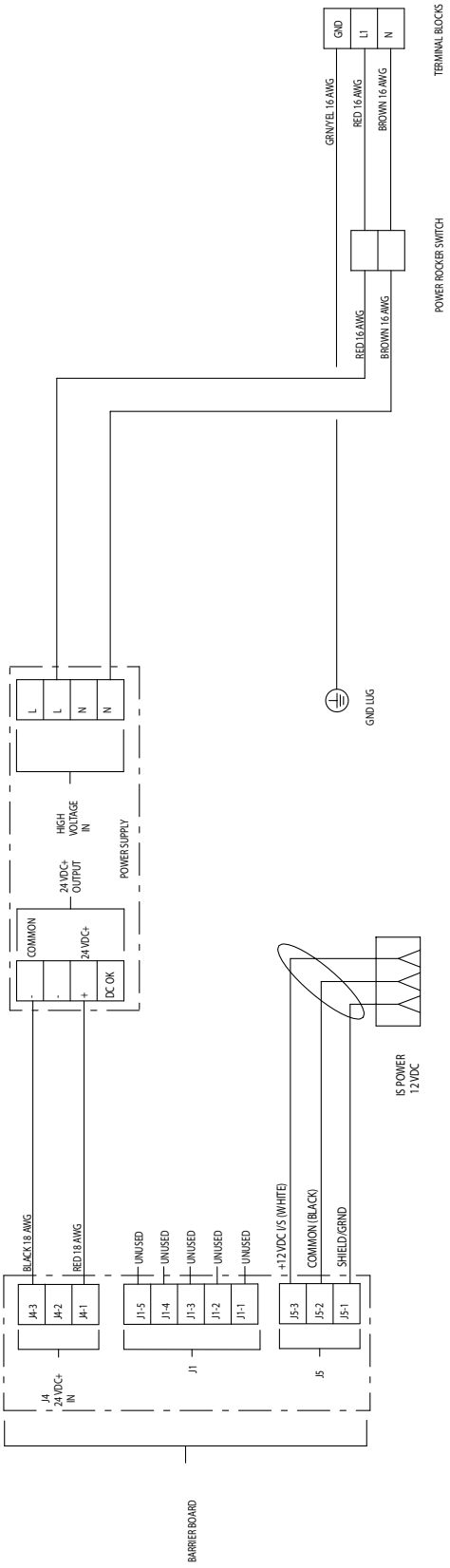
System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 3KS system. Some components shown are not included with all systems.

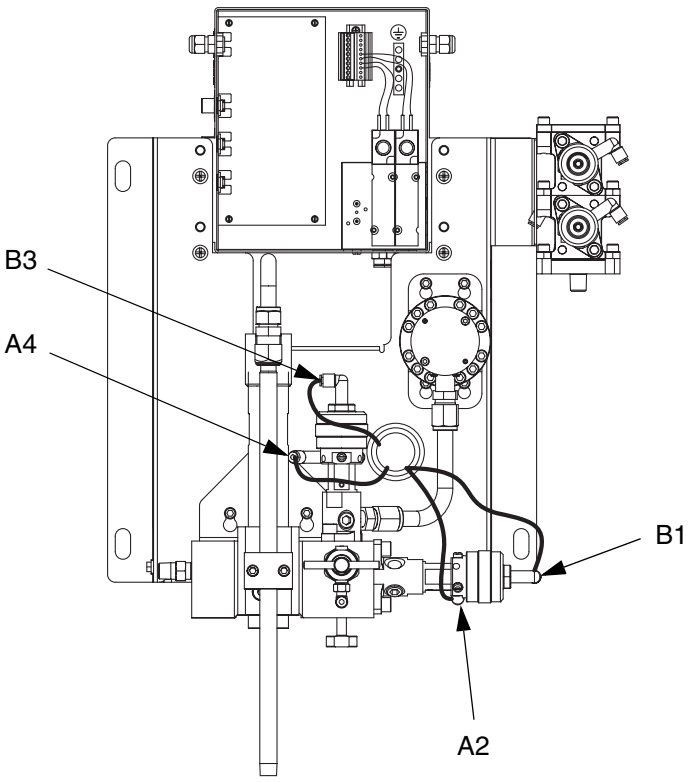
Hazardous Area



Power Supply Module Electrical Schematic



Tubing Schematic



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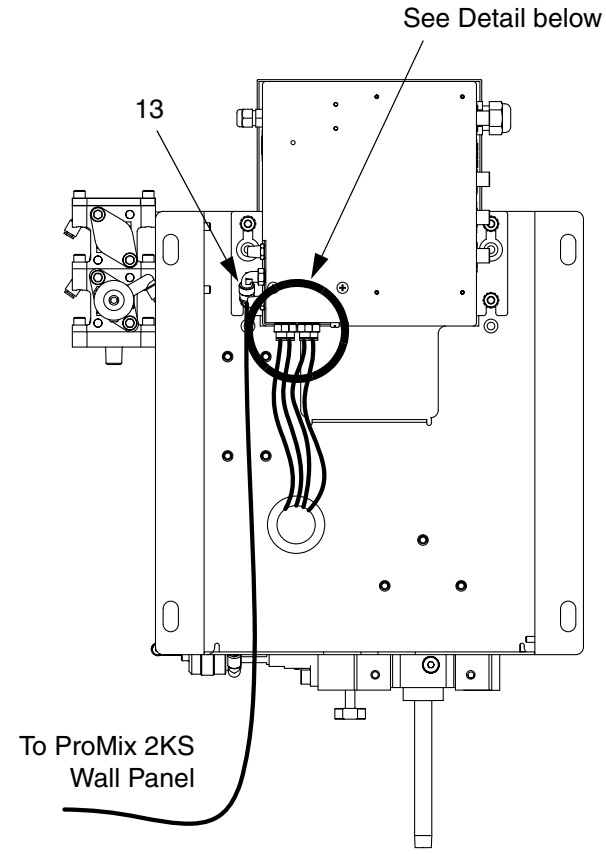
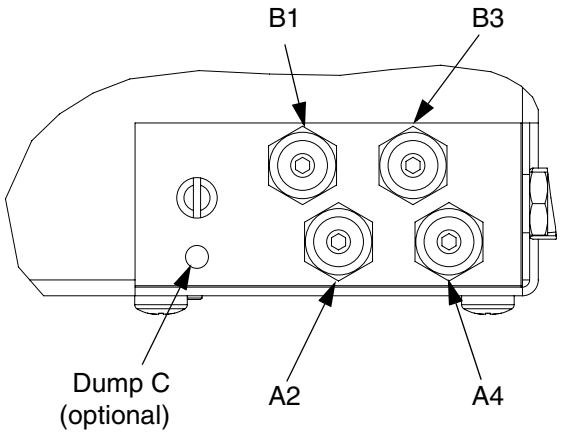


TI14850a



TI14380a

Table 6: Tubing Chart

Color	Description	Starting Point	Ending Point	Tube OD in. (mm)
Green	Purge C On	A2	A2	5/32 (4)
Green	Dose C On	A4	A4	5/32 (4)
Red	Purge C Off	B1	B1	5/32 (4)
Red	Dose C Off	B3	B3	5/32 (4)
Natural	Solenoid Air Supply	13	13	1/4 (6)

Service

Before Servicing

- To avoid electric shock, turn off power supply module power before servicing.
- Servicing power supply module exposes you to high voltage. Shut off power at main circuit breaker before opening power supply module.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
- Do not substitute system components as this may impair intrinsic safety.
- Read **Warnings**, page 6.

NOTICE

To avoid damaging circuit board when servicing, wear Part No. 112190 grounding strap on wrist and ground appropriately.

NOTE: For complete system servicing, including the EasyKey, A/B Fluid Station, and Optional Flow Control, see your ProMix 2KS Repair-Parts Manual.

1. Flush system and follow **Pressure Relief Procedure**, page 8, if service time may exceed pot life time and before servicing fluid components.
2. Close main air shutoff valve on air supply line and on ProMix 3KS.
3. Shut OFF the Power Switch on the EasyKey and on the Power Supply Module (0 position). FIG. 10.
4. If servicing power supply module, also shut off power at main circuit breaker.

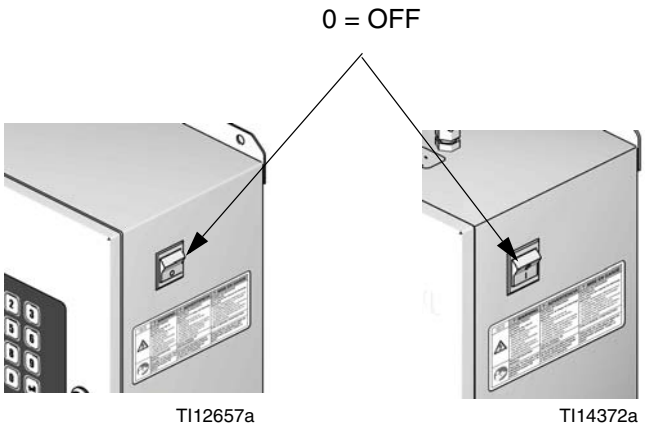


FIG. 10: Power Off

After Servicing

After servicing the system, be sure to follow the **Start Up** checklist and procedure in the ProMix 3KS Operation manual.

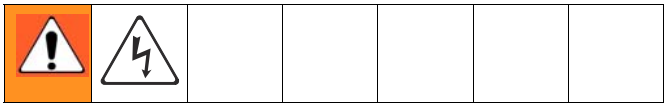
Servicing Power Supply Module

Updating Software

To update software, upload new software from your PC using the basic web interface. See manual 313386.

NOTE: If using the Graco Gateway in your system, disconnect its cable from the EasyKey before updating the ProMix 3KS software.

Replacing Barrier Board



NOTICE

To avoid damaging circuit board when servicing, wear Part No. 112190 grounding strap on wrist and ground appropriately.

1. Follow **Before Servicing**, page 30.
2. Unlock and open the power supply module door with its key.
3. Disconnect the cables and connectors from J1, J4, and J5. FIG. 12.
4. Using the security tool provided (Part No. 122239), remove 2 screws (107) and the cover (103b). See FIG. 11.
5. Noting their location, remove 5 screws (104, 105) from the barrier board (103a). Do not remove the screw noted in FIG. 12. Remove board.
6. Apply thermal compound to the heatsink (Z) on the back of the new barrier board (103a). See FIG. 12.
7. Install the new barrier board with the 5 screws (104, 105).
8. Install the cover (103b) with 2 screws (107), using the security tool.
9. Connect cables to J1, J4, and J5.
10. Close and lock power supply module door with key.
11. Turn on power at main circuit breaker.
12. Turn power supply module power on to test operation.

Replacing Barrier Board Fuses

Fuse	Part No.	Description
F1, F2	114788	Power In Fuses; 2 amp, time lag
F3, F4	15D979	Power Out Fuses; 0.4 amp, quick acting

1. Follow **Replacing Barrier Board**, steps 1-4.
2. Remove the fuse (F1, F2, F3, or F4) from its fuse holder. FIG. 12.
3. Snap new fuse into holder.
4. Follow **Replacing Barrier Board**, steps 8-12.

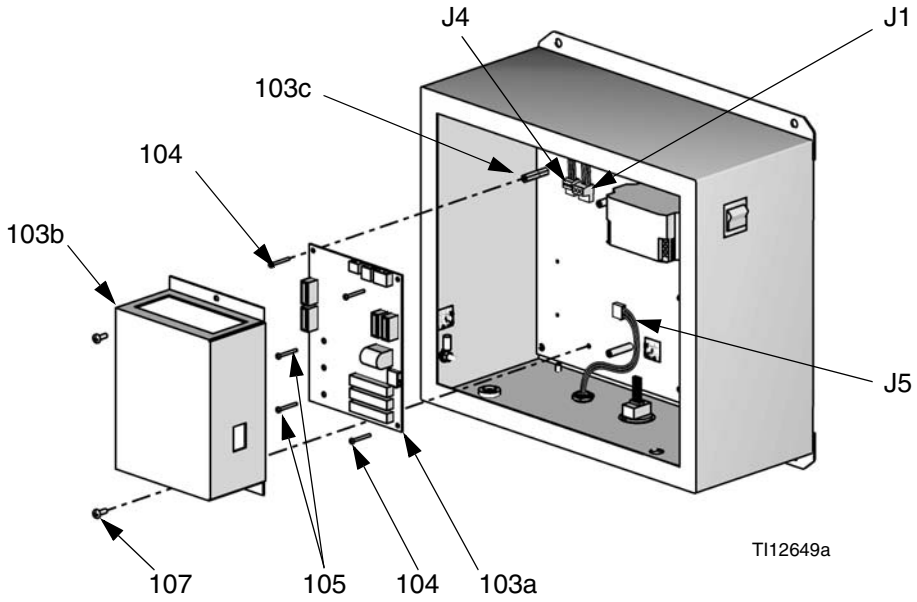
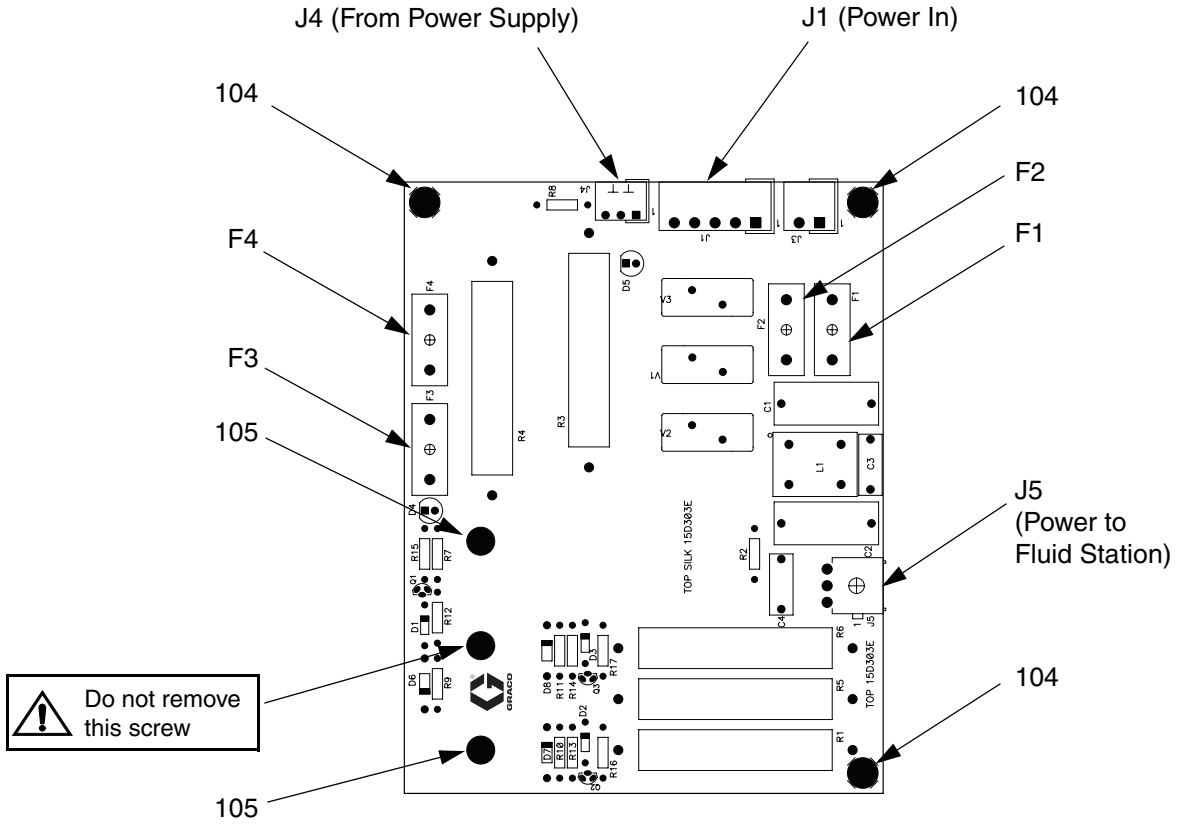
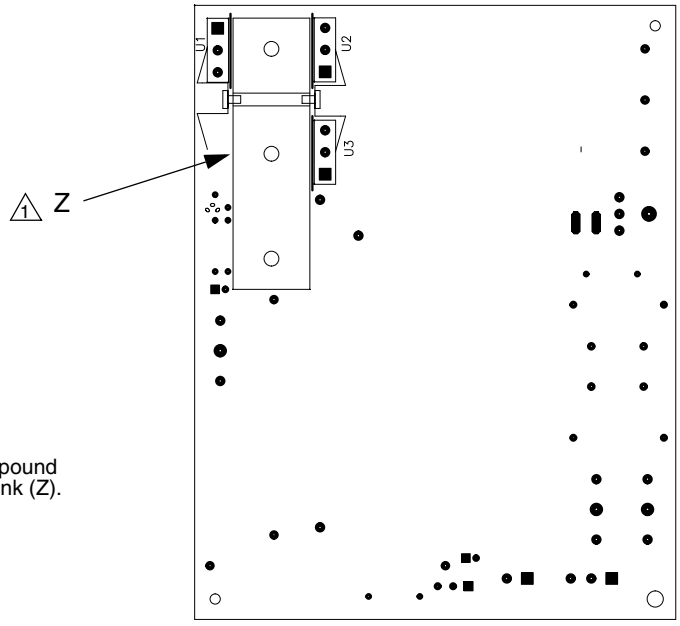


FIG. 11: Replacing Barrier Board



Front of Barrier Board, showing Fuses and Connectors

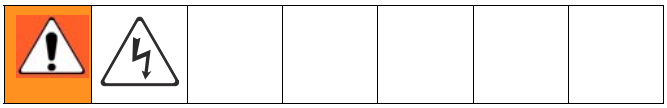


1 Apply thermal compound to surface of heatsink (Z).

Back of Barrier Board, showing Heatsink (Z)

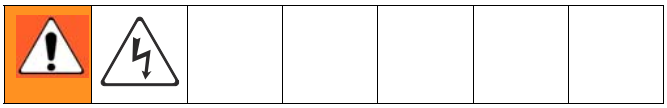
FIG. 12: Barrier Board Connectors and Fuses

Replacing Power Supply



1. Follow **Before Servicing**, page 30.
2. Unlock and open the power supply module door with its key.
3. Note position of power supply input and output wires. See **Power Supply Module Electrical Schematic**, page 28. Disconnect wires from power supply (103f). See FIG. 13.
4. Remove power supply from din rail.
5. Install new power supply (103f). Reconnect input and output wires in positions noted in step 3.
6. Close and lock power supply module door with key.
7. Turn on power at main circuit breaker.
8. Turn power supply module power on to test operation.

Replacing Power Switch



1. Follow **Before Servicing**, page 30.
2. Unlock and open the power supply module door with its key.
3. Note position of power switch wires. See **Power Supply Module Electrical Schematic**, page 28. Disconnect wires and remove switch (112, FIG. 13).
4. Install new power switch (112). Reconnect wires in positions noted in step 3.
5. Close and lock power supply module door with key.
6. Turn on power at main circuit breaker.
7. Turn power supply module power on to test operation.

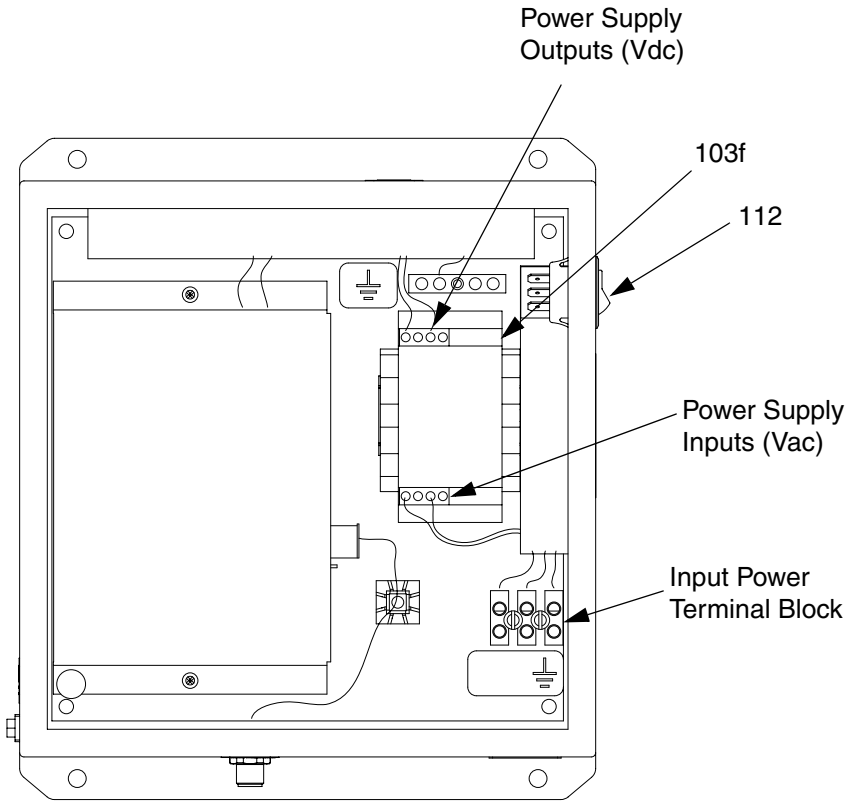
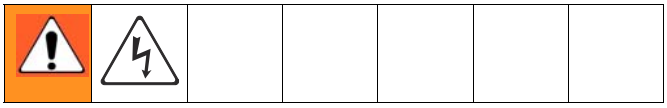


FIG. 13: Power Supply

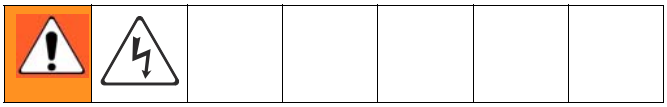
3KS Wall Mount Fluid Station

Preparation



1. Follow **Before Servicing**, page 30.
2. Loosen the 4 screws (215), then remove the Wall Mount Fluid Station cover (203). FIG. 15.

Replacing CAN Isolation Board



NOTICE

To avoid damaging circuit board when servicing, wear Part No. 112190 grounding strap on wrist and ground appropriately.

1. Follow **Preparation**, page 35.
2. Disconnect all cables (J1, J2, J3, J8) from CAN isolation board (214). FIG. 14.
3. Remove 4 screws (220). Remove connector jam nuts on the outside of the power supply module (202). Remove board (214). FIG. 15.
4. Install new CAN isolation board (214) with 4 screws (220).
5. Connect cables to board (214). FIG. 14.
6. Replace the cover (203).
7. Turn power on to test operation.

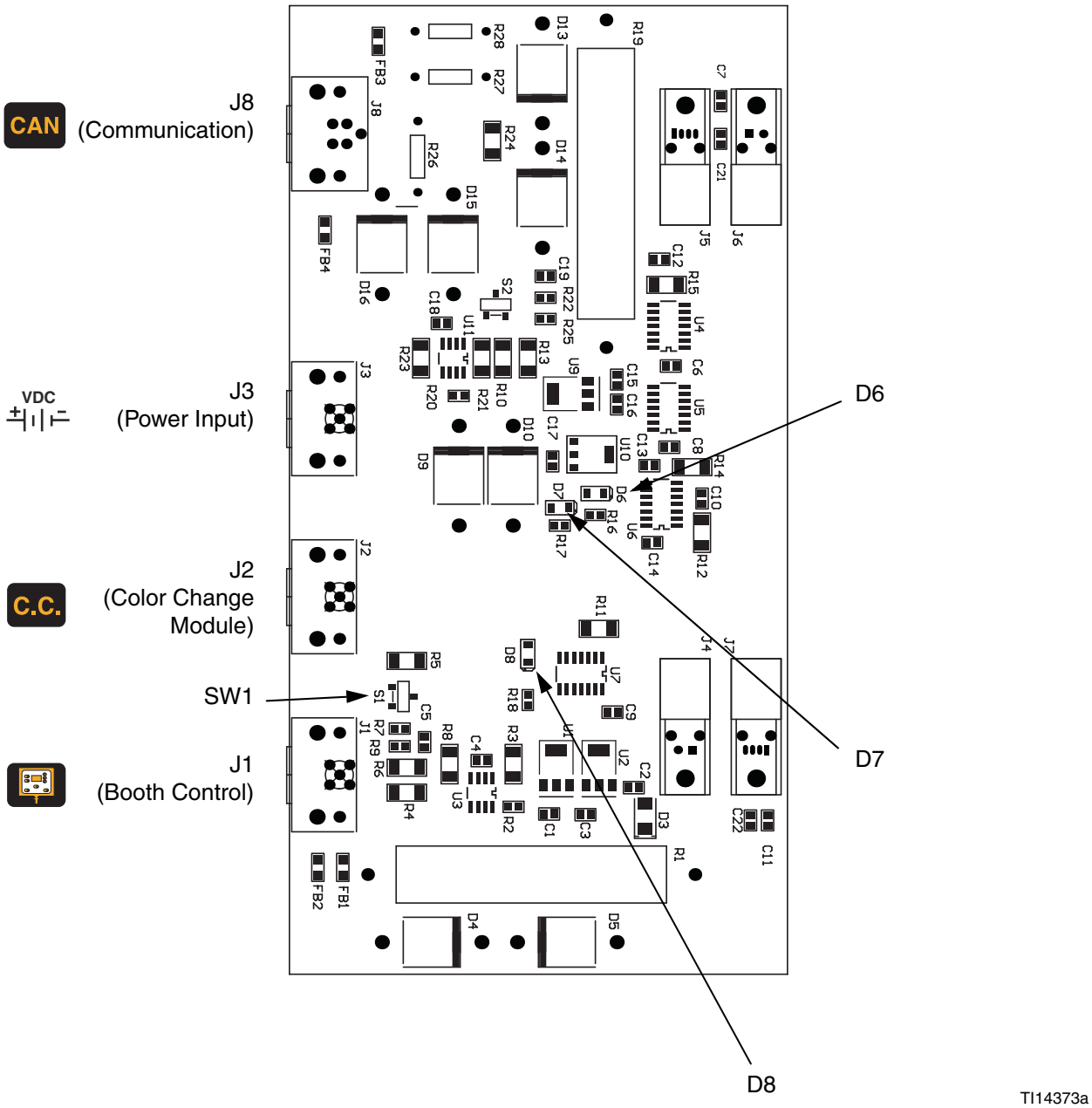


FIG. 14: 258673 3KS Fluid Station CAN Isolation Board

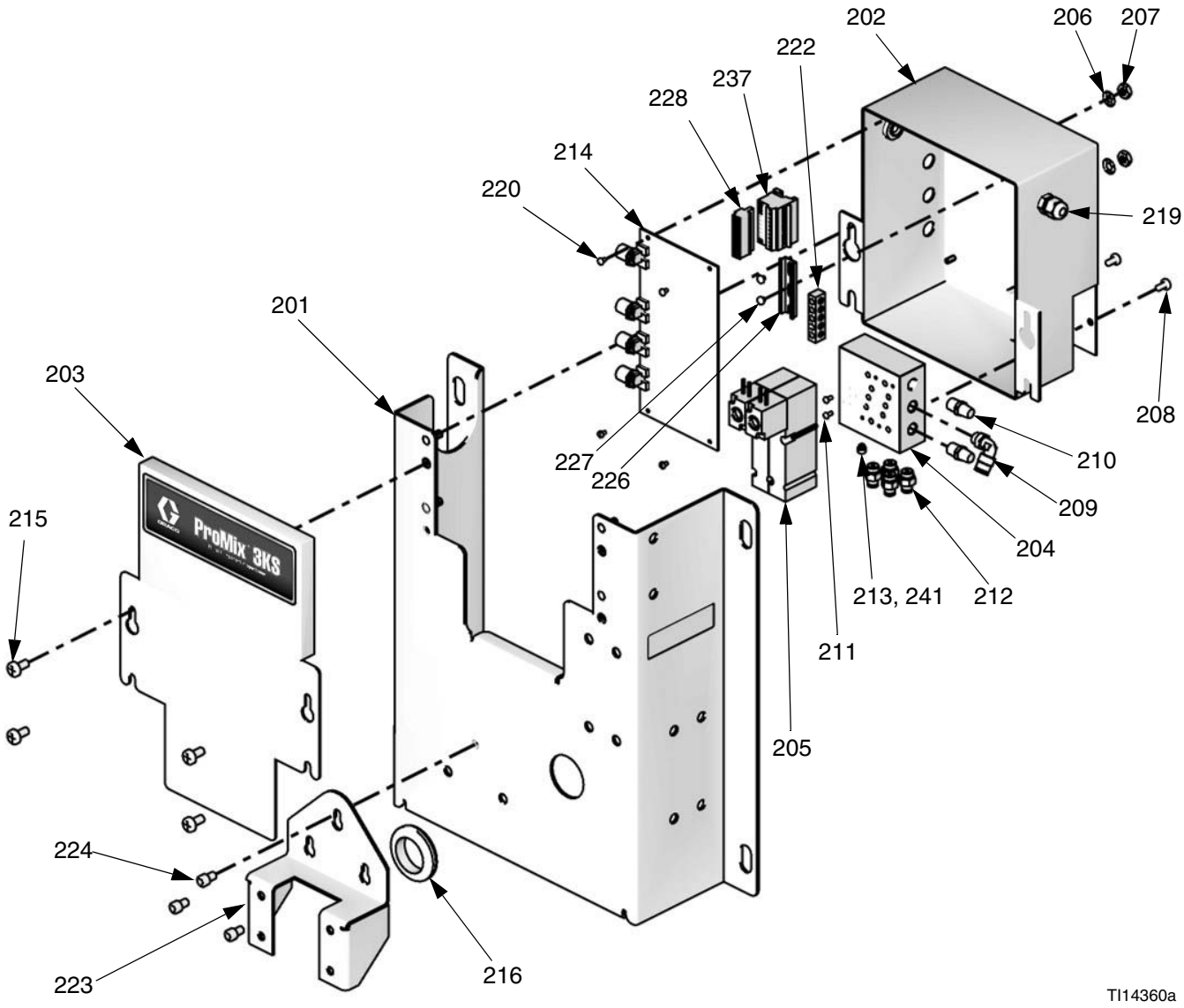


FIG. 15: 3KS Wall Mount Fluid Station

Replacing Solenoids

The Wall Mount Fluid Station has a minimum of 2 solenoids. If you have options installed, you have additional (optional) solenoids for each. See Table 7 and **Schematic Diagrams**, page 22.

To replace a single solenoid:

1. Follow **Preparation**, page 35, and shut off power at main circuit breaker.
2. Disconnect 2 solenoid wires (N) from the terminal strip (T). FIG. 16.
3. Unscrew 2 screws (P) and remove solenoid (205).
4. Install new solenoid (205).
5. Connect 2 wires (N) to the terminal strip (T). Solenoid wires are polarized (red +, black –). Refer to **System Electrical Schematic**, page 26.
6. Replace the cover (203).

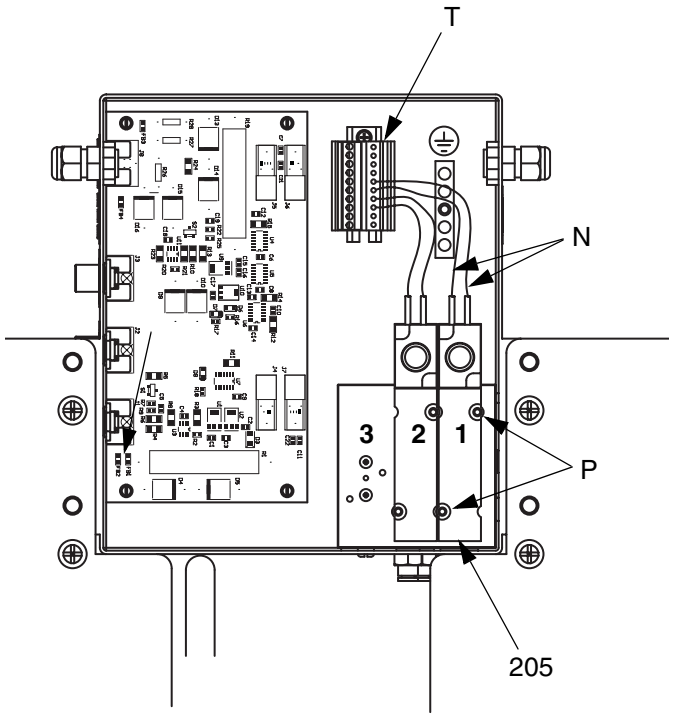


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FIG. 16: Replacing Solenoids

Table 7: 3KS Wall Panel Solenoids

Solenoid	Terminal Strip Pin	Actuates
Standard		
1	5 (black), 6 (red)	Dose Valve C
2	7 (black), 8 (red)	Purge Valve C
Optional		
3	9 (black), 10 (red)	Dump Valve C

Servicing Flow Meters

Coriolis Meter

1. Follow **Before Servicing**, page 30.
2. To remove and service the Coriolis meter, see manual 313599.

G3000 or G3000HR Meter

Removal

1. Follow **Before Servicing**, page 30.
2. Unscrew cable connector from meter sensor (SN). FIG. 17.
3. Unscrew four 1/4-20 screws (MS) holding the meter mounting plate (MP). FIG. 17.
4. Unscrew fluid line (FL) from meter inlet.
5. Unscrew meter (M) from dose valve connector (H). FIG. 17.
6. Service meter as instructed in the meter manual 308778.

Installation

1. Screw meter (M) securely onto the dose valve connector (H), using a wrench.

NOTICE

To avoid leakage, secure the meter (M) to the dose valve connector (H) before connecting it to the fluid station.

2. Secure meter (M) and plate (MP) to fluid station with screws (MS).
3. Connect meter cable.
4. Connect fluid line (FL).
5. Calibrate meter as instructed in ProMix Operation manual.

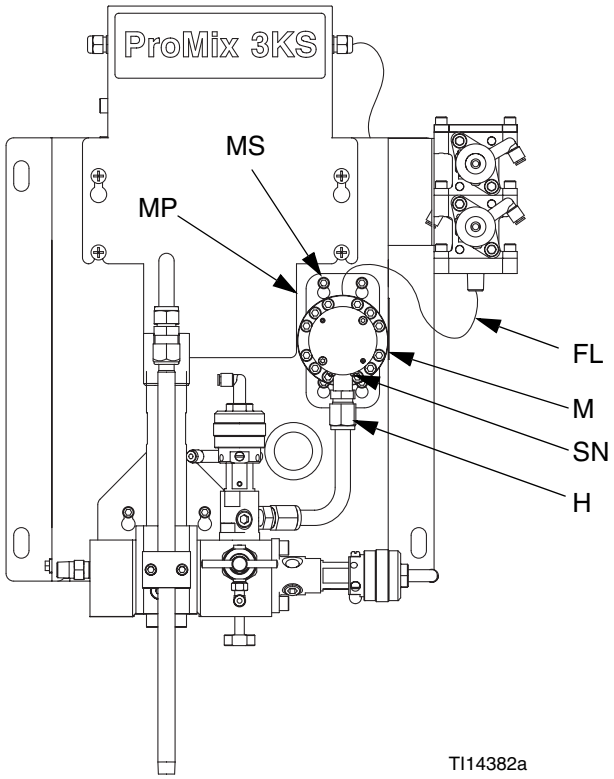
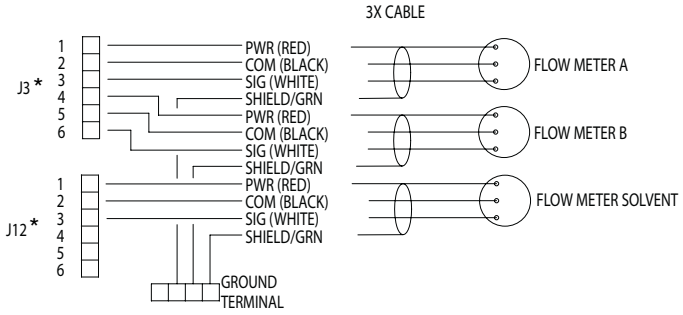


FIG. 17: G3000/G3000HR Flow Meters

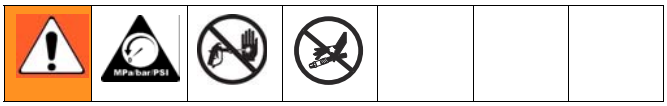
Cable	Length
241799	5 ft (1.52 m)
241800	16 in. (406 mm)
241801	13 in. (330 mm)



*Connectors on 2KS Fluid Station Control Board

FIG. 18: Meter Cable Schematic

Servicing Fluid Manifold



Removal

1. Follow **Servicing Flow Meters, Removal** steps 1-5, page 39.
2. Disconnect air and fluid lines from the manifold (3).
3. Holding onto the fluid manifold (3), loosen the three screws (224) holding the bracket (223) to the fluid station. Lift the fluid manifold (3) and pull it away from the panel. Service as instructed in the Fluid Mix Manifold manual 312781.

Installation

1. Secure the fluid manifold (3) and mounting plate (224) with three screws (223).
2. Install meters. See **Installation** steps 1-3, page 39.
3. Connect air and fluid lines.
4. Calibrate meters as instructed in ProMix Operation manual.

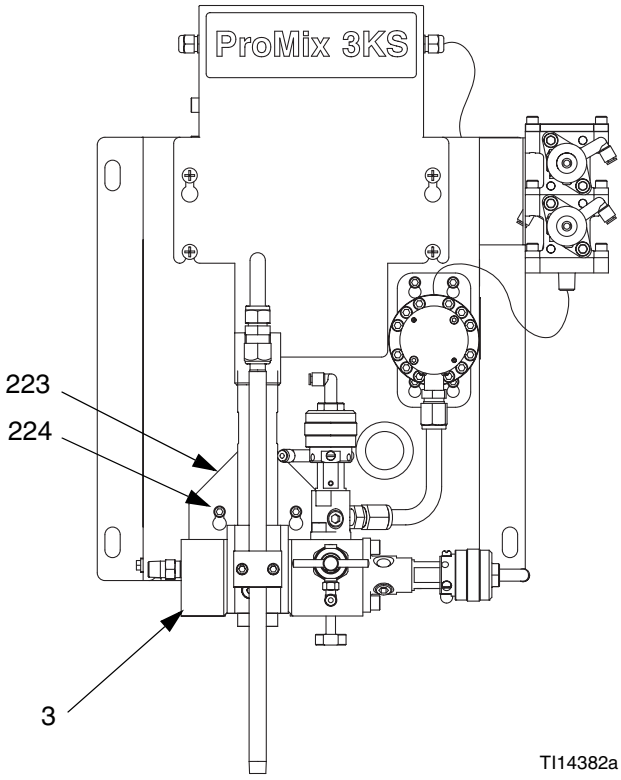
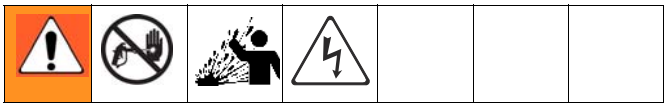


FIG. 19: Fluid Manifold

Servicing Color Change Module, Color/Catalyst Valves, and Dump Valves

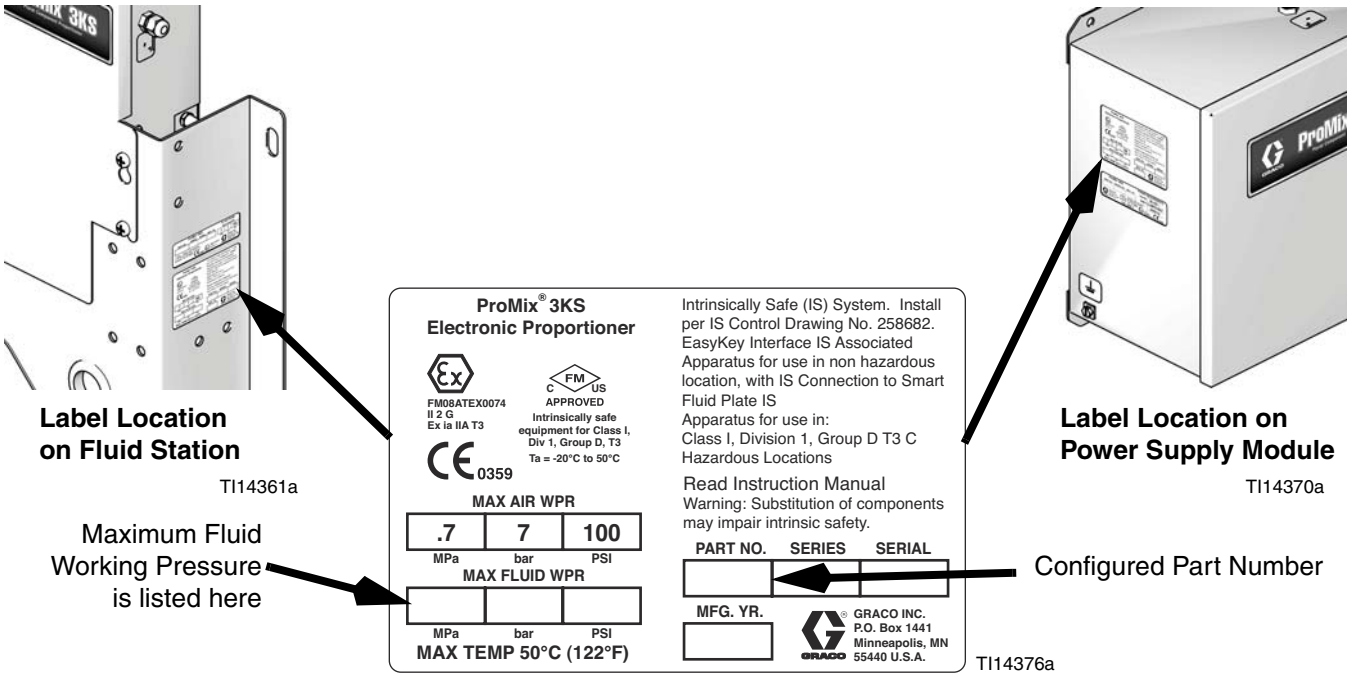


1. Follow **Before Servicing**, page 30.
2. See manual 312787 for the color change module.
3. See manual 312783 for the color/catalyst valve stacks.
4. See manual 312786 for the dump valve kits.
5. See manual 312782 to service an individual valve.

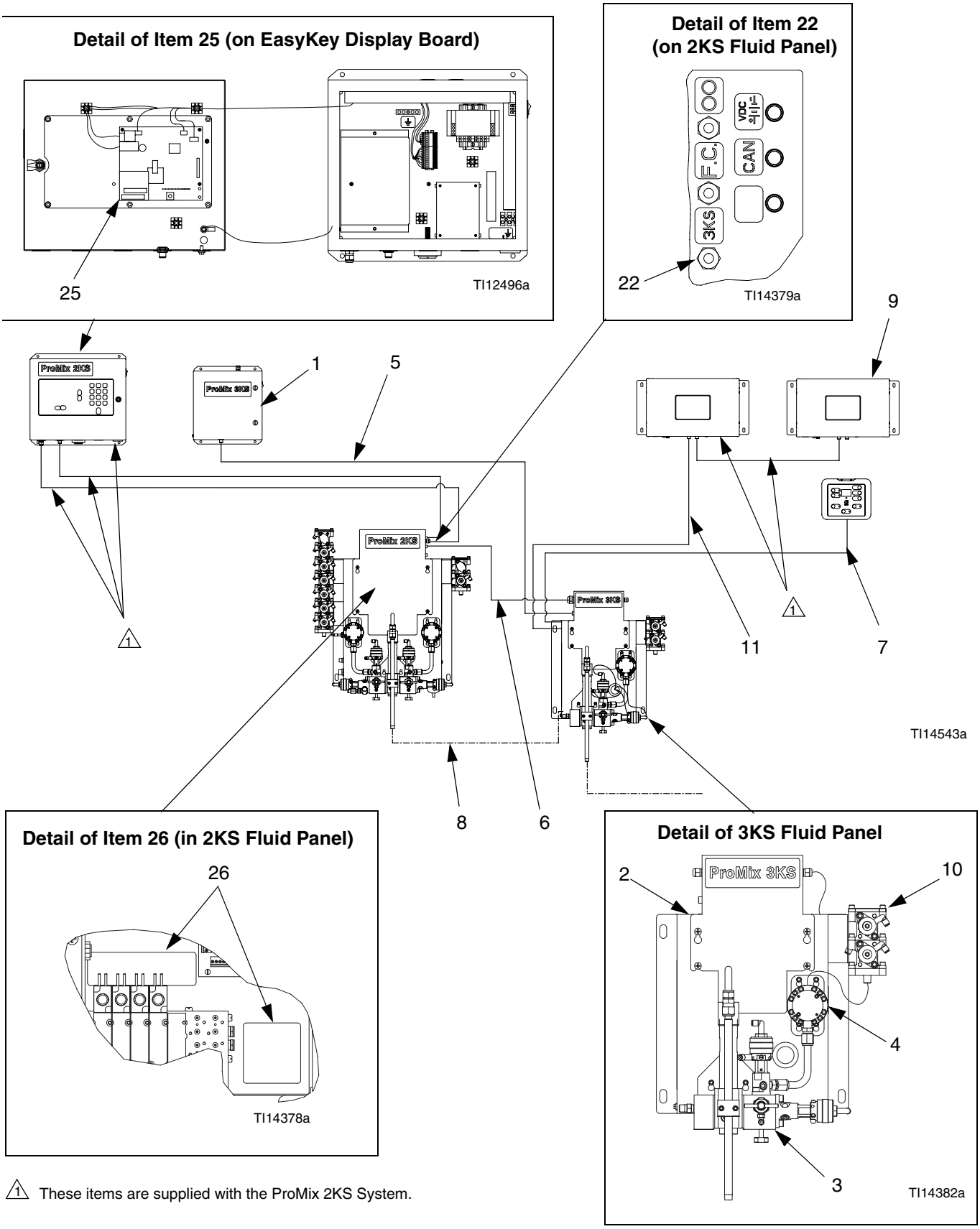
Parts

Configurator Key

The configured part number for your equipment is printed on the equipment identification labels. See the illustrations below for location of the identification labels. The part number includes digits from each of the following categories, depending on the configuration of your system. ***The digits in this table do not correspond to ref. nos. in the parts lists or parts drawings.***				
3K System	**Third Component Fluid Meter**	**Third Component Change**	**Not Designated**	**Not Designated**
TK	0 = No Meter 1 = G3000 2 = G3000HR 3 = 1/8 in. Coriolis 4 = Solvent Meter	0 = No Valves (single component C) 1 = Two Valves (low pressure) 2 = Four Valves (low pressure) 3= Two Valves (high pressure) 4= Four Valves (high pressure)	0	0



ProMix 3KS System



1 These items are supplied with the ProMix 2KS System.

Ref. No.	Configured Digit (see page 41) or part usage	Part No.	Description	Qty
1	standard part	258670	POWER SUPPLY MODULE; see page 44	1
2	standard part	see page 46	PANEL, fluid	1
3	standard part	256875	MANIFOLD, mix; see manual 312781	1
4			KIT, flow meter C	
	0	none	none	0
	1	15V804	KIT, G3000 flow meter; see manual 308778	1
	2	15V827	KIT, G3000HR flow meter; see manual 308778	1
	3	15V806	KIT, Coriolis flow meter; see manual 313599	1
	4	280555	KIT, solvent flow meter; see manual 308778	1
5	standard part	123271	CABLE, CAN, intrinsically safe; connects power supply module to fluid station; 50 ft (16 m); red	1
6	standard part	123273	CABLE, CAN, intrinsically safe; connects ProMix 2KS fluid station to ProMix 3KS fluid station; 10 ft (3 m); green	1
7	standard part	123280	CABLE, CAN, intrinsically safe; connects booth control to ProMix 3KS fluid station; 50 ft (16 m); yellow	1
8	standard part	205058	HOSE, fluid; 1/4 npsm(fbe); 6 ft (2 m); ptfe; connects ProMix 2KS static mixer to ProMix 3KS mix manifold inlet	1
9	0 - 4	see below	MODULE, control, color change; see page 43	see below
10	0 - 4	see below	VALVE STACK, color change; see page 43	see below
11	0 - 4	123277	CABLE, CAN, intrinsically safe; connects color change control module to fluid station; 6 ft (2 m); yellow	1
22	standard part	114421	CONNECTOR, cord, strain relief	1
25	standard part	16A457	BOARD, circuit, 3KS upgrade, ProMix 3KS	1
26	standard part	15W513	LABEL, solenoid connection guide	1

Color Change Accessory Kits

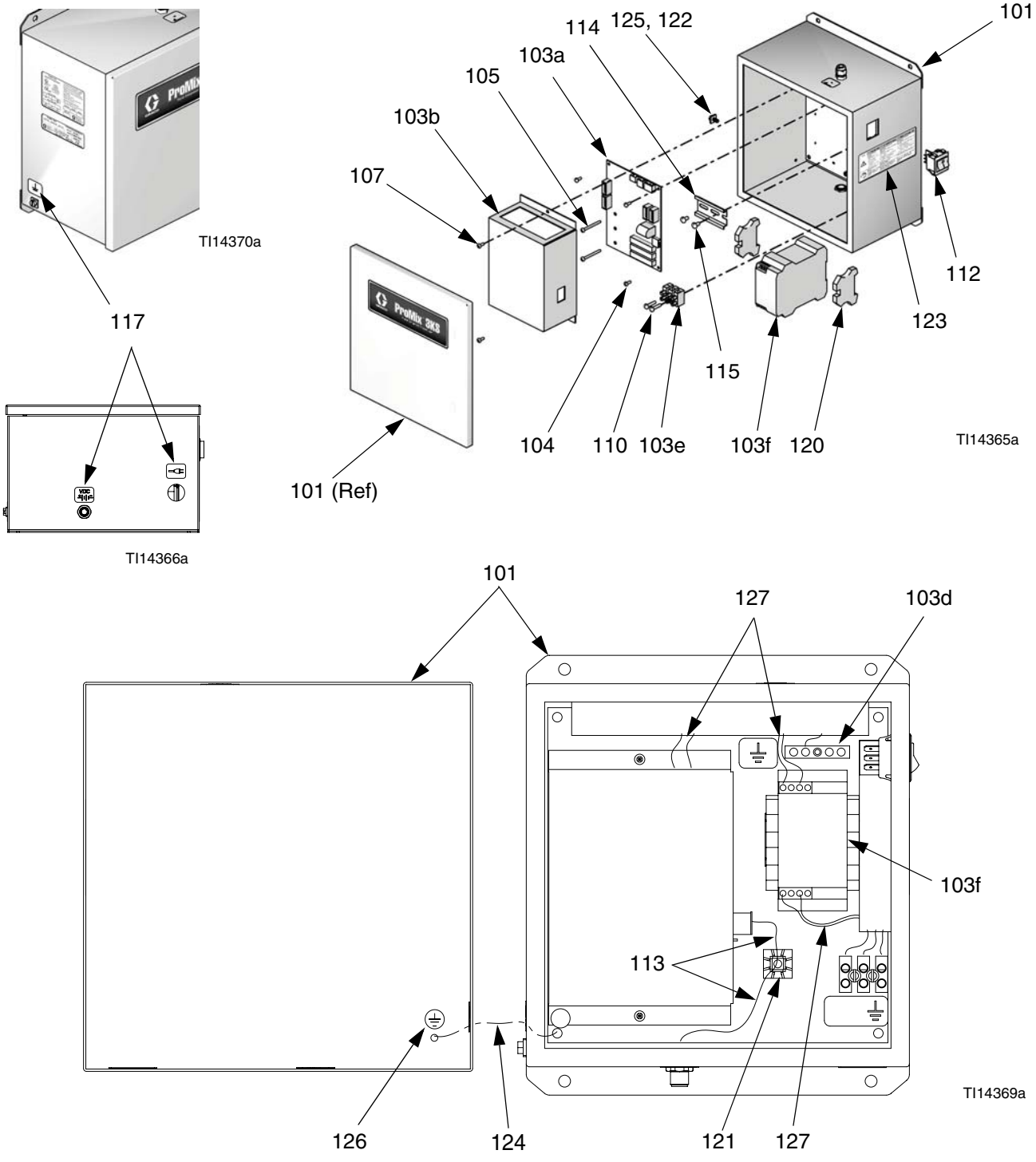
Low Pressure Color Change Kits

Kit Part No.	Kit Description	Control Module (9; see 312787)	Color Change Valve Stack (10; see 312783)
256581	2 color	278275	15V812
256582	4 color	278276	15V813

High Pressure Color Change Kits

Kit Part No.	Description	Control Module (9; see 312787)	Color Change Valve Stack (10; see 312783)
256596	2 color	278275	15V816
256597	4 color	278276	15V817

258670 Power Supply Module



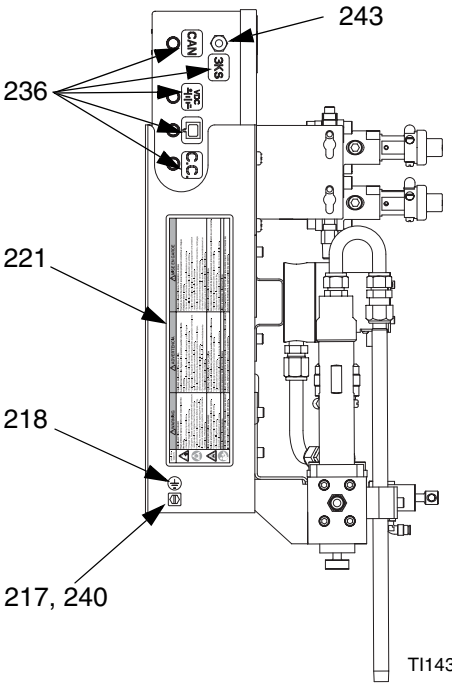
258670 Power Supply Module

Ref. No.	Part No.	Description	Qty
101	n/a	POWER SUPPLY MODULE	1
103	n/a	PLATE, application; includes items 103a-103f	1
103a	255786	• BOARD, barrier, IS; (includes fuses 15D979 and 114788, see page 33 for fuse location)	1
103b	n/a	• COVER	1
103c	117526	• SPACER	3
103d	119257	• BAR, ground	1
103e	114095	• BLOCK, terminal	1
103f	121314	• POWER SUPPLY; 24 Vdc; 2A	1
104	n/a	SCREW, machine, pan-hd; 6-32 x 3/8 in. (10 mm)	3
105	n/a	SCREW, machine, pan-hd; 6-32 x 1-1/2 in. (38 mm)	2
107	n/a	SCREW, machine, pan-hd; 10-24 x 3/8 in. (10 mm)	2
110	n/a	SCREW, machine, pan-hd; 8-32 x 3/4 in. (19 mm)	2
112	116320	SWITCH, power	1
113	15V280	HARNESS, connection	1
114	n/a	RAIL	1
115	n/a	SCREW, machine, rd-hd; #10 x 3/8 in. (10 mm)	6
117▲	15G569	LABEL, EasyKey inputs	1
120	120838	BLOCK, clamp end	2
121	n/a	HOLDER, tie	1
122	223547	GROUND WIRE; 25 ft (7.6 m)	1
123▲	15W776	LABEL, warning	1
124	194337	WIRE, grounding, door	1
125	116343	SCREW, ground; M5 x 0.8	1
126▲	186620	LABEL, ground	1
127	16A335	HARNESS, wire	1

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Parts labeled n/a are not available separately.

Wall Mount Fluid Station



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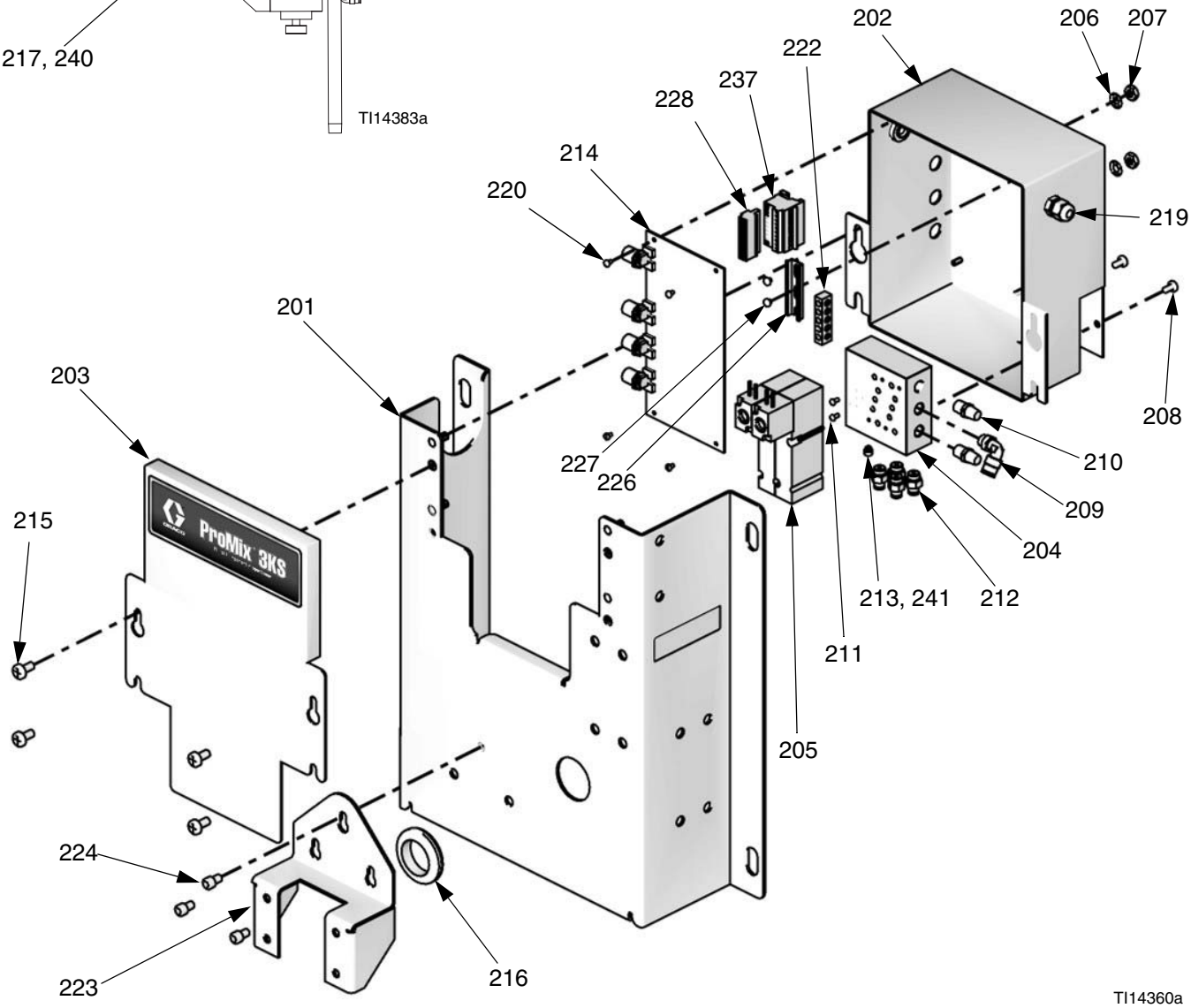

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Wall Mount Fluid Station

NOTE: Parts are shown on page 46, unless noted.

Ref. No.	Part No.	Description	Qty
201	n/a	PLATE, mounting	1
202	256841	ENCLOSURE	1
203	15V790	COVER	1
204	15V879	MANIFOLD, solenoid, 3 station	1
205	121374	VALVE, solenoid, intrinsically safe; 12 Vdc	2
206	100985	WASHER, lock, external tooth; 1/4	4
207	101345	NUT, hex, jam; 1/4-20	4
208	n/a	SCREW, machine, pan-hd; #10 x 3/8 in. (10 mm)	2
209	112698	ELBOW, swivel, 90°; 1/8 npt(m) x 1/4 in. (6 mm) OD tube	1
210	C06061	MUFFLER	2
211	121628	SCREW, machine, self-sealing; 4-40 x 1/4 in. (6 mm)	2
212	114263	FITTING, tube; 1/8 npt(m) x 5/32 in. (4 mm) OD tube	4
213	104644	PLUG, screw; 10-32 x 5/32 in. (4 mm)	2
214	258673	BOARD, circuit, CAN isolation	1
215	113783	SCREW, machine, pan hd; 1/4-20 x 1/2 in. (13 mm)	4
216	120685	GROMMET	1
217	116343	SCREW, ground	1
218▲	186620	LABEL, symbol, ground	2
219	111987	CONNECTOR, cord strain relief	2
220	n/a	SCREW, machine, pan hd; 4-40 x 3/16 in. (5 mm)	4
221▲	15W775	LABEL, warning	1
222	119257	CONNECTOR, bar, ground	1
223	15U510	BRACKET, valve mount	1
224	C19798	SCREW, cap, socket-hd; 1/4-20 x 3/8 in. (10 mm)	3
226	n/a	RAIL	1
227	104714	SCREW, machine, pan hd; #6 x 3/16 in. (5 mm)	2
228	116773	CONNECTOR, plug,10-position	1
229	n/a	TUBE, nylon, red; 5/32 in. (4 mm) OD; two 2 ft (0.6 m) lengths	A/R
230	n/a	TUBE, nylon, green; 5/32 in. (4 mm) OD; two 2 ft (0.6 m) lengths	A/R
234	n/a	TUBE, nylon; 1/4 in. (6 mm) OD; 10 ft (3.05 m) supplied	A/R
236	n/a	LABEL, installation	1
237	123329	CONNECTOR, 10-pin	1
238	16A357	WIRE HARNESS	1
240	16A475	WIRE, ground; 25 ft (7.6 m)	1
241	104640	GASKET	2
243	104421	STRAIN RELIEF	1

▲ *Replacement Danger and Warning labels, tags, and cards are available at no cost.*

Parts labeled n/a are not available separately.

Available Cables

Part No.	Color Code	Length, ft (m)	Usage
Cables to connect the EasyKey to the ProMix 2KS Fluid Station			
15U533	Blue	50 (15.25)	Standard IS Power Cable to connect EasyKey with 2KS Fluid Station
15U531	Blue	2 (0.61)	Optional IS Power Cable
15U532	Blue	3 (0.92)	Optional IS Power Cable
15V205	Blue	6 (1.83)	Optional IS Power Cable
15V206	Blue	10 (3.05)	Optional IS Power Cable
15V207	Blue	15 (4.57)	Optional IS Power Cable
15V208	Blue	25 (7.62)	Optional IS Power Cable
15V213	Blue	100 (30.50)	Optional IS Power Cable
15D320	n/a	50 (15.25)	Standard Fiber Optic Communication Cable to connect EasyKey with 2KS Fluid Station
15G710	n/a	100 (30.50)	Optional Fiber Optic Cable
Cables to connect the 3KS Power Supply Module to the ProMix 3KS Fluid Station			
123271	Red	50 (15.25)	Standard IS Power Cable to connect 3KS Power Supply Module with 3KS Fluid Station
123272	Red	100 (30.50)	Optional IS Power Cable
Cables to make connections within the Hazardous Area			
15U532	Blue	3 (0.92)	Standard CAN Cable to connect Color Change Module 1 with Color Change Module 2
123273	Green	10 (3.05)	Standard CAN Cable to connect 2KS Fluid Station with 3KS Fluid Station
123274	Green	25 (7.62)	Optional CAN Cable to connect 2KS Fluid Station with 3KS Fluid Station
123277	Yellow	6 (1.83)	Standard CAN Cable to connect Color Change Module 1 with 3KS Fluid Station Optional CAN Cable to connect Booth Control with 3KS Fluid Station
123280	Yellow	50 (15.25)	Standard CAN Cable to connect Booth Control with 3KS Fluid Station Optional CAN Cable to connect Color Change Module 1 with 3KS Fluid Station
15G611	n/a	10 (3.05)	Standard IS Power and Communication Cable to connect Flow Control Module to 2KS Fluid Station
15G614	n/a	40 (12.2)	Optional IS Power and Communication Extension Cable to increase cable length from Flow Control Module to 2KS Fluid Station

Technical Data

Maximum fluid working pressure	*Base system:* 3000 psi (21 MPa, 210 bar) *Low pressure color change:* 300 psi (2.1 MPa, 21 bar) *High pressure color change:* 3000 psi (21 MPa, 210 bar) *Coriolis meter:* 2300 psi (16.1 MPa, 161 bar)
Maximum working air pressure	100 psi (0.7 MPa, 7 bar)
Air supply	75 - 100 psi (0.5 - 0.7 MPa, 5.2 - 7 bar)
Air filter inlet size	3/8 npt(f)
Air filtration for air logic and purge air (Graco-supplied)	5 micron (minimum) filtration required; clean and dry air
Air filtration for atomizing air (user-supplied)	30 micron (minimum) filtration required; clean and dry air
Mixing ratio range	Stage 1 (A:B): 0.1:1- 50:1* Stage 2 (A+B:C): 0.1:1- 50:1*
On-ratio accuracy	up to ± 1%, user selectable
Fluids handled	one or two component: • solvent and waterborne paints • polyurethanes • epoxies • acid catalyzed varnishes • moisture sensitive isocyanates
Viscosity range of fluid	20- 5000 cps*
Fluid filtration (user-supplied)	100 mesh minimum
Fluid flow rate range*	
G3000, G250 Meter	75 - 3800 cc/min. (0.02-1.00 gal./min.)
G3000HR, G250HR Meter	38 - 1900 cc/min. (0.01-0.50 gal./min.)
Solvent Meter	20 - 3800 cc/min. (0.005-1.00 gal./min.)
Coriolis Meter	38 - 1900 cc/min. (0.01-0.50 gal./min.)
Fluid inlet sizes	
Flow Meter	1/4 npt(f)
Dose Valve/Color Valve Adapters	1/4 npt(f)
3KS Fluid Station	1/4 npt(m)
Fluid outlet size (static mixer)	1/4 npt(f)
External Power Supply Requirements	85 - 250 Vac, 50/60 Hz, 2 amps maximum draw 15 amp maximum circuit breaker required 8 to 14 AWG power supply wire gauge
Operating temperature range	41- 122° F (5-50° C)
Environmental Conditions Rating	indoor use, pollution degree (2), installation category II
Noise Level	
Sound pressure level	below 70 dBA
Sound power level	below 85 dBA
Wetted parts	303, 304 SST, Tungsten carbide (with nickel binder), perfluoroelastomer; PTFE

* Dependent on flow rate, dose size, and meter resolution.

See individual component manuals for additional technical data.

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Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Original instructions. This manual contains English. MM 313883

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